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Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE <b>2012</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2012 to 00-00-2012</b>	
4. TITLE AND SUBTITLE <b>Promoting International Energy Security: Volume 3, Sea-Lanes to Asia</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>RAND Corporation, Project Air Force (PAC), 1776 Main Street, P.O. Box 2138, Santa Monica, CA, 90407-2138</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>90</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

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R E P O R T

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# Promoting International Energy Security

Volume 3, Sea-Lanes to Asia

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Peter Chalk, James T. Bartis

Prepared for the United States Air Force

Approved for public release; distribution unlimited



RAND PROJECT AIR FORCE

The research described in this report was sponsored by the United States Air Force under Contract FA7014-06-C-0001. Further information may be obtained from the Strategic Planning Division, Directorate of Plans, Hq USAF.

**Library of Congress Control Number: 2012939787**

ISBN 978-0-8330-6860-6

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Published 2012 by the RAND Corporation  
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## Preface

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The dramatic rise in oil prices in 2008 increased attention yet again on the sources of imported oil, the workings of the world oil market, and the potential problems of meeting future demand for liquid fuels. Energy security concerns often focus on the Middle East, but countries outside that area produce most of the world's oil and natural gas. Political instability, governance shortfalls, conflict, and the potential for further conflict both inside and outside the Middle East continue to threaten the continuity of oil and natural gas supplies.

Nearly three-fourths of the oil leaving the Hormuz Strait is headed toward Asia. Clearly, Asian nations have an important stake in maintaining the security of this flow. Asia's dependence on the Middle East for oil and natural gas is likely to grow over time. For these reasons, Asian powers might be willing to take on a greater role in assuring the security of the sea-lanes from Hormuz to Asia. This opens the opportunity for a multinational approach to sea-lane protection.

In this technical report, we examine the current security situation for the energy sea-lanes to Asia, the relevant current and potential future threats, the opportunities and issues associated with moving toward multinational sea-lane protection, and the potential assistance the Air Force might provide the U.S. Navy if a multinational approach is pursued.

This report is the third of a four-volume series examining U.S. Air Force roles in promoting international energy security. This research was sponsored by the Office of Operational Planning, Policy and Strategy, Deputy Chief of Staff for Operations, Plans, and Requirements, Headquarters, U.S. Air Force, and was undertaken within the Strategy and Doctrine Program of RAND Project AIR FORCE as part of a fiscal year 2010 study, "Air Force Roles in Promoting International Energy Security."

The other three volumes in this series are

- James T. Bartis, *Promoting International Energy Security*, Vol. 1: *Understanding Potential Air Force Roles*, Santa Monica, Calif.: RAND Corporation, TR-1144/1-AF, 2012.
- Andrew S. Weiss, F. Stephen Larrabee, James T. Bartis, and Camille A. Sawak, *Promoting International Energy Security*, Vol. 2: *Turkey and the Caspian*, Santa Monica, Calif.: RAND Corporation, TR-1144/2-AF, 2012.
- Stuart E. Johnson, Caroline Baxter, James T. Bartis, and Duncan Long, *Promoting International Energy Security*, Vol. 4: *The Gulf of Guinea*, Santa Monica, Calif.: RAND Corporation, TR-1144/4-AF, forthcoming.

Readers interested in energy security may also find the following RAND documents to be of interest:

- James T. Bartis and Lawrence Van Bibber, *Alternative Fuels for Military Applications*, Santa Monica, Calif.: RAND Corporation, MG-969-OSD, 2011.
- Keith Crane, Andreas Goldthau, Michael Toman, Thomas Light, Stuart E. Johnson, Alireza Nader, Angel Rabasa, and Harun Dogo, *Imported Oil and U.S. National Security*, Santa Monica, Calif.: RAND Corporation, MG-838-USCC, 2009.

This report will also be of interest and value to those involved with the Air Force and AirSea Battle planning and assessment, U.S. regional security approaches, planning and provisioning of security assistance in Asia, and individuals interested in South and East Asian alliances and security cooperation.

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## Summary

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Security for Asia's major energy sea-lanes—running from the Hormuz Strait, into the Indian Ocean, through the Malacca Strait to Singapore, and into the South China Sea—currently lags behind the growing criticality of these waterways. Key economic powers in the region depend on sea-lane transport for the vast majority of their oil supplies, which in turn help to fuel their economic growth. Although the U.S. Navy has traditionally guaranteed freedom of the seas in Asia, a growing mission set and shrinking force structure challenge this role.

The growing mismatch between the importance of the sea-lanes and the stress on and vulnerability of the system has contributed to rising energy insecurity in the region. This exploratory report assesses whether an alternative approach to sea-lane security would be valuable and what role, if any, the U.S. Air Force might play in enhancing sea-lane security. RAND found that, while the direct benefits of greater Air Force engagement in improving energy sea-lane security would likely be marginal, the spillover benefits of joint operations with the Navy and multinational engagement could make greater Air Force involvement worthwhile.

To inform this analysis, we conducted a broad survey of secondary and primary sources and interviewed country, regional, and operational experts. Our sources included professional journals, academic studies, official strategy and doctrine documents (both domestic and foreign), international and interdepartmental agreements, and news reports. We also participated in several conferences related to maritime security and to piracy in particular.

To understand the concerns over sea-lane security and potential alternative security arrangements, we examined the importance of the sea-lanes in transporting energy, current and foreseeable threats to sea-lane security, existing national and multinational mechanisms for securing the sea-lanes, the potential benefits of alternative arrangements, and the challenges associated with pursuing a new approach to sea-lane security. While the findings of this study are by no means exhaustive, they confirm the potential value of a comprehensive and rigorous inquiry into specific joint and multinational points of engagement for the Air Force.

The majority of the world's rising consumption of energy, and oil in particular, is occurring in Asia. Limited regional oil production means that Asia increasingly relies on imported oil, primarily from the Middle East. Close to 90 percent of the energy that China, Japan, and South Korea import must pass through the Southeast Asian sea-lanes (Storey, 2009a, p. 36). Continual access to these energy supplies is critical for sustained economic growth in Asia, which has been a source of stability in the region.

Threats to sea-lane security can be categorized in three tiers, based on the primary belligerent actor. Tier I threats are nonstate actors, including natural phenomena (such as tsunamis), criminal activity (including piracy), and terrorist movements. These are by far the most common threats, but their ability to disrupt energy flows is quite limited in scope and

duration. Tier I threats tend to have small and/or transitory economic consequences. Tier II threats emanate from failing or rogue states. These states may serve as safe havens for the types of activities that make up Tier I, and in the case of rogue states, the state may actually be the sponsor of such criminal activity. While Tier II threats are not currently present in the region, Bangladesh, Cambodia, Indonesia, Burma, Pakistan, and Thailand have all experienced recent periods of unrest and are not yet free of the risk of further destabilization. Tier III threats constitute capable state-level threats that may involve coercion or force to advance parochial interests, such as by threatening or using force within sea-lanes. Unresolved historic and emerging tensions within the region increase the risk of this type of threat. While the likelihood of a major energy disruption is low, its consequences would be serious. Perceptions of economic vulnerability have led to both national and regional efforts to improve maritime security.

Currently, Asian sea-lane security defaults either to the the U.S. Navy or to emerging and less effective ad hoc multinational mechanisms within the Indian and Pacific Oceans. Traditionally, security issues in the region have been addressed bilaterally. But recently, collective regional security mechanisms have begun to emerge. At least nine multilateral security groupings in the region now address maritime security in some way. Two of the more-promising groups are the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP) and the Malacca Strait Patrol Network, which countries in the region established to improve coordination of sea-lane security information and activities. While most of these regional mechanisms are still weak, the openness of countries to participation in such forums suggests an increasing understanding of the necessity and benefits of coordination and cooperation.

Despite fledgling improvements in multilateral mechanisms, the existing security structure still suffers from seams and gaps in key capabilities, including surveillance and information sharing, response time and capability, and interoperability. Perceived shortfalls in sea-lane security have manifested themselves through the growth in Asian naval modernization, development of alternative energy distribution systems (such as overland pipelines), the rise in maritime insurance rates, and reliance on private security firms.

RAND explored two alternative approaches to sea-lane security: joint and multinational. A joint approach would include the involvement of not only the U.S. Navy but also the U.S. Air Force and other relevant elements of the U.S. government (such as the Coast Guard and Department of State). Benefits of such an approach would include easing the mission stress on the Navy, allowing it to take a holistic approach to challenges and the United States to engage with regional partners on a number of levels (not just navy to navy).

A multinational approach could enhance partner capacity, while promoting burden sharing; through coordination, improve the effectiveness and efficiency of unilateral and bilateral efforts; and better accommodate the emergence of new powers in the region, improving regional stability through confidence building.

Yet implementing such a new approach will not be without challenges. Obstacles to a multinational approach to maritime security include (1) differing interests within the region, (2) differing threat perceptions, (3) concerns over state sovereignty, (4) negative attitudes toward externally led initiatives, and (5) differing levels of capability among contributing nations. A new approach will need to carefully navigate regional and country-specific preferences and resolve barriers to cooperation within the United States' own bureaucracy.

With these challenges in mind, RAND identified six attributes that would contribute to the success of an alternative approach to sea-lane security. The new approach should be

- built on existing mechanisms for cooperation
- flexible in form
- sensitive to sovereignty
- focused on operationalizing ideas and commitments
- economically affordable
- a true partnership.

To validate the benefits of and pinpoint opportunities for both joint and multinational approaches to sea-lane security, RAND identified a number of potential next steps for the Air Force to take:

- leverage the Air-Sea Battle initiative to further investigate opportunities for greater Air Force–Navy interdependency
- use joint exercises and experimentation to explore and validate sea-lane security options
- pursue greater Headquarters Air Force engagement with Pacific Command and the Asia Pacific Center for Security Studies regarding regional sea-lane security
- consider incorporating maritime security with ongoing training of partner air forces
- introduce a scenario on Indian Ocean sea-lanes or energy security at the Building Partnership Seminars hosted by USAF headquarters or at the Operator Engagement Talks
- evaluate Air Force air- and space-based intelligence, surveillance, and reconnaissance assets that could enhance sea-lane observation
- send a liaison officer to Singapore’s Information Fusion Centre.

Although the direct benefits to sea-lane security of greater Air Force engagement are marginal, enhanced Air Force participation in sea-lane security should not be dismissed. The anticipated spillover benefits of a more joint and/or multinational approach to sea-lane security might more than justify Air Force participation. Forward-leaning engagement could help the Air Force to develop stronger, more-cooperative security relationships with countries in the region. And state-to-state confidence-building activities could contribute to broader regional security.



## Acknowledgments

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The authors would like to extend special thanks to Mohan Malik and CAPT Carleton Cramer, USN (ret.), of the Asia Pacific Center for Security Studies and William Wesley and his colleagues from the Navy's Pacific Fleet Command for answering our numerous questions on security developments in Asia.

We also benefited immensely from the comments and feedback provided by a number of colleagues at RAND. In particular, we would like to thank James Bartis, Paula Thornhill, Jennifer Moroney, Alan Vick, Karl Mueller, and Christopher Clary for their helpful insights and recommendations.

Finally, this study would not have been possible without the sponsorship of the Concepts, Strategy and Wargaming Division of the Office of Operational Planning, Policy and Strategy, Deputy Chief of Staff for Operations, Plans, and Requirements, Headquarters, U.S. Air Force (AF/A5XS) and the direct involvement of Lt Col Jordan Thomas, AF/A5XS.



## Abbreviations

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AIS	Automatic Identification System
APEC	Asia-Pacific Economic Cooperation
ARF	ASEAN Regional Forum
ASEAN	Association of Southeast Asian Nations
CNO	Chief of Naval Operations
CTF	combined task force
CWS	Coast Watch South
DoD	U.S. Department of Defense
DOS	U.S. Department of State
EIA	U.S. Energy Information Administration
FY	fiscal year
IFC	Information Fusion Centre
IMB	International Maritime Bureau
IMO	International Maritime Organization
ISC	Information Sharing Centre
ISR	intelligence, surveillance, and reconnaissance
JCG	Japanese Coast Guard
LNG	liquefied natural gas
mbd	million barrels per day
MSP	Malacca Strait Patrol
NATO	North Atlantic Treaty Organization
ODS	Operation Desert Storm
OPEC	Organization of Petroleum Exporting Countries

MV	motor vessel
PACOM	U.S. Pacific Command
PAF	Project AIR FORCE
PLAN	People's Liberation Army Navy
PSI	Proliferation Security Initiative
ReCAAP	Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia
RIMPAC	Rim of the Pacific
RMSI	Regional Maritime Security Initiative
SAARPSCO	South Asia and Africa Regional Port Security Cooperative
SHADE	shared awareness and deconfliction
UN	United Nations
WPNS	Western Pacific Naval Symposium

## Prologue

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This volume reports on exploratory research undertaken as part of broader study directed at energy security and how it affects U.S. Air Force (USAF) planning. That broader study examined the world oil market, how developments in that market might affect “wholesale” supplies of jet fuel, and what measures the Air Force might take to protect itself against high fuel prices and supply disruptions, as documented in Bartis, 2012. To better examine the potential role of the Air Force in promoting international energy security, we conducted three exploratory studies. The first focuses on the Caspian region and Turkey and is documented in Weiss et al., 2012. The second, documented here, addresses the sea-lanes from Hormuz to Asia. The last focuses on the Gulf of Guinea and is documented in Johnson et al., forthcoming. This prologue presents an overall summary of the findings of the broader study on energy security, so that readers will be able to place the current volume in that context.

### The World Oil Market

Global demand for liquid fuels is about 87 million barrels per day (bpd). Presently, over 98 percent of this demand is met by petroleum products derived from crude oil and, to a much smaller degree, liquid hydrocarbons that are coproduced with natural gas. Over half of global crude oil production enters the international oil trade.

As is the case with many other commodities, oil prices are subject to large variations. For petroleum, price volatility is especially pronounced for three reasons:

1. It takes a fairly long time to bring new production online in response to price signals—generally at least six years and often much longer.
2. Once new production is brought online, the marginal costs of continuing production are fairly low.
3. Over the short term, petroleum demand is fairly unresponsive to prices.

These three factors account for the persistent high petroleum prices during most of the 1970s and early 1980s and the 17 years of low prices beginning in 1985. The low petroleum prices during the late 1980s and 1990s resulted in what, in retrospect, turned out to be an underinvestment in new petroleum production, leading to historically high crude oil prices during 2007 and 2008.

Complicating this structural picture of the world petroleum market are two major institutional problems. The first is the existence of an international oil cartel, the Organization of Petroleum Exporting Countries (OPEC). OPEC has a strong interest in keeping world crude

oil prices high and reducing price volatility. The history of oil prices since 1973, however, shows that OPEC has had mixed success with both objectives. In fact, the net result of OPEC's existence may be increased crude oil price volatility, since OPEC's attempts to maintain high oil prices, when prices are already high, tend to promote additional investment in new oil production in nations, including some members of OPEC, that do not conform to OPEC's production quotas.

The second institutional problem stems from the location of the world's petroleum resources. While most of the world's conventional petroleum resources are located in nations astride the Persian Gulf, there are also appreciable resources in many other locations. But nearly all the major oil exporting nations outside the Persian Gulf, and a few inside, suffer from governance problems that seriously impede investment in additional productive capacity. The notable exceptions are Canada and Norway. By presenting a barrier to investment in petroleum (and natural gas) production, governance shortfalls have made world oil prices more volatile and higher than they would otherwise be. For example, considering just two countries—Iraq and Nigeria—continuing conflict is keeping daily production millions of barrels below what their combined resource base is able to support. In most of the other important oil exporting countries, governance shortfalls center on corruption, the lack of the rule of law, and persistent violations of human rights.

## **Responding to the Market**

The first volume of this series examines the measures that the Air Force, and more broadly, the U.S. Department of Defense (DoD), can take in response to the structural and institutional conditions that characterize the world petroleum market. While DoD is one of the world's largest fuel users, its consumption of about 340,000 bpd is a small fraction (less than 0.5 percent) of global petroleum demand. Considering that U.S. domestic petroleum production is about 7.5 million bpd, and that an additional 3 million bpd of secure supplies are imported from Canada and Mexico, we can find no credible scenario in which the military would be unable to access the 340,000 bpd of fuel that it needs to defend the nation.

While DoD and the services will have access to the wholesale fuel supplies that they require, the price for those supplies may be high. As fuel consumers, DoD and the services have only one effective option for dealing with high petroleum prices: reducing overall petroleum fuel use. This can be accomplished by purchasing equipment and adopting maneuver schemes that are more energy efficient and, in the short term, by implementing energy conservation measures to reduce petroleum use. We also found that alternative fuels do not offer DoD a way to appreciably reduce fuel costs.

## **Promoting Energy Security**

USAF plays an important and productive role in the world oil market, not as a consumer but rather as one of the armed services of the United States. The armed services are the backbone of the U.S. national security policy that ensures access to the energy supplies of the Persian Gulf and the stability and security of key friendly states in the region. Moreover, the U.S. Navy, by

its global presence, ensures freedom of passage in the sea-lanes that are crucial to international trade in petroleum and natural gas.

Can more be done? Is there a productive role for the Air Force in further promoting energy security? To answer these questions, we conducted three exploratory studies focusing on (1) Nigeria and other potential oil exporting countries in the Gulf of Guinea, (2) the Caspian oil and gas exporting nations and Turkey, and (3) the sea-lanes from Hormuz to Asia. We purposely selected topic areas outside of the Middle East because the U.S. military is already active in the Persian Gulf and the Strait of Hormuz. Additionally, energy security issues within the Middle East have been well studied.

The analyses reported in the three volumes of exploratory studies led us to conclude that there is a role for the Air Force but that important caveats apply. In nations where security shortfalls impede hydrocarbon production or transport, current and future USAF capabilities in building partnership capacity offer security improvements that could promote greater production of petroleum and natural gas resources. Notable examples of nations where security shortfalls are significantly impeding investment and production are Nigeria and Iraq. While we did not examine the situation in Iraq, our review of opportunities to build partnership capacity in Nigeria and other nations bordering the Gulf of Guinea suggests that any efforts to build military partnerships in this region must consider broader U.S. goals, especially the risks that U.S.-provided military capabilities might be applied to local civilian populations. While there are signs of improved governance in Nigeria, these considerations suggest that Ghana may be a more attractive partner.

In examining the Caspian Region, the major energy supply challenge for current and future energy flows stems from the region's need for significant upstream investment, the lack of a well-developed export infrastructure, and Russia's desire to determine how the region's energy resources are developed. Although the Russian invasion of Georgia in 2008 did not directly target energy infrastructure, most export routes for oil and natural gas from Azerbaijan to Turkey were interrupted for several weeks because of the combination of precautionary shutdowns and an apparent sabotage attack inside Turkey. With regard to the remaining nations in the Caspian region, we found that direct threats to the security of the energy infrastructure are being fairly well addressed, especially considering the current low threat level.

Turkey appears as a special case because of its geostrategic location, status as a North Atlantic Treaty Organization (NATO) member, and long-time relationship with USAF. Kurdish terrorists have been able to execute numerous successful attacks on oil pipelines traversing eastern Turkey. The pace of attacks against energy-related targets will cause investors to weigh pipeline security risks when considering the large investments that will be required if Turkey is to realize its goal of becoming an energy hub between Europe and both the Caspian and the Middle East. Another important Turkish energy transit issue is the oil tanker traffic through the Bosphorus Strait. From the Turkish perspective, concerns center on limiting heavy tanker traffic and transit delays in the Bosphorus and coping with the potential damage from a major oil spill. From the oil industry perspective, transit security concerns center on a terrorist attack or navigation accident that might block tanker passage for many months. Considering its state of development and military capabilities, Turkey certainly has the wherewithal to address pipeline attacks and the concerns regarding the Bosphorus. However, USAF could play a productive, albeit limited, role in promoting technology transfer and best practices on infrastructure protection, with the main motivation being the strengthening of the U.S. and USAF relationship with Turkey.

Another potential role for USAF is in assisting the U.S. Navy in sea-lane protection, which is the subject of the third volume of this series of technical reports. Asia's sea lines of communication are a growing security concern because of the increasing dependence of rapidly expanding Asian economies on imported energy sources—oil and natural gas. Unfortunately, regional security mechanisms have not kept pace and are no longer commensurate with the rise in the region's significance.

On this topic, our first major finding is that a joint approach, in which USAF provides meaningful assistance to the Navy, offers a more efficient and effective application of U.S. defense assets. By capitalizing on USAF-Navy interdependencies, a joint approach would lay a foundation for addressing more-strategic concerns, including the overall USAF role in assuring access to the global commons, and the collaborative development of an interdependent force posture. Our second, and more significant, finding is that overall U.S. interests are best served by a multinational approach to the protection of the energy sea-lanes to Asia. This approach provides a much better mechanism for addressing potentially serious threats that might arise if one or more of the countries along the sea-lane fails or goes rogue. Additionally, multinational cooperation in sea lines of communication protection provides a means of dampening the lingering tensions and simmering disputes that prevail within Asia. From the USAF perspective, a multinational approach provides new opportunities for interaction, building partnerships, and assuring access.

## Introduction

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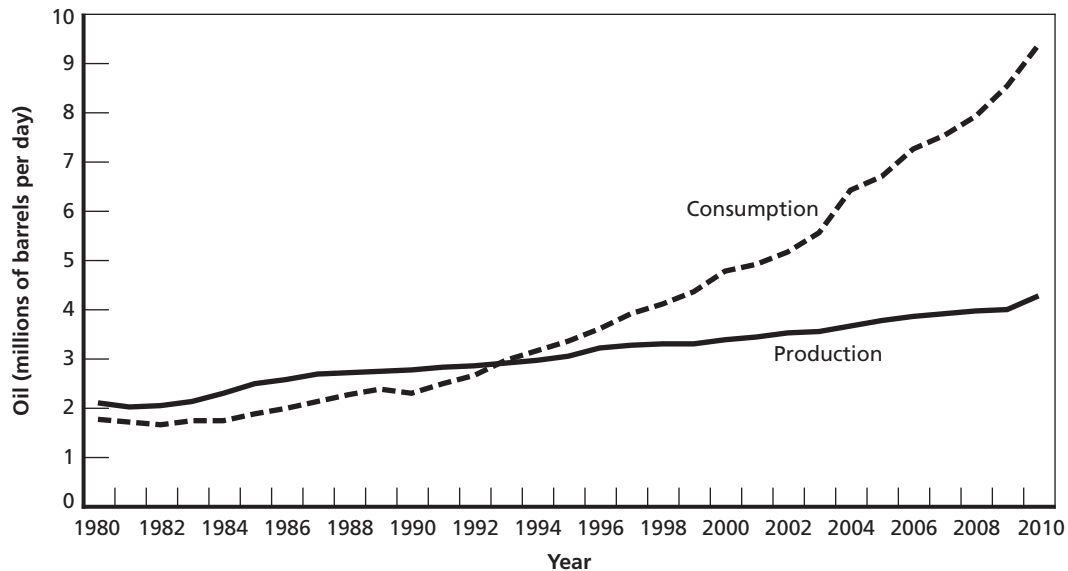
Historically, since the end of World War I, the U.S. Navy has been the de facto guarantor of the freedom of the seas and secure movement of goods in and out of Asia. Secretary of State Hillary Rodham Clinton reiterated the U.S. commitment to preserving access to the Asian sea lines of communication (sea-lanes) on a recent trip to Vietnam: “The United States, like every nation, has a national interest in freedom of navigation, open access to Asia’s maritime commons, and respect for international law in the South China Sea” (Clinton, 2010). Yet the nation’s ability to play this role is under increasing pressure due to the rise of new powers in the region and the ongoing demands on the U.S. military. The U.S. Navy, in particular, faces the challenges of a growing mission set and a shrinking force structure. This mismatch between the importance of maintaining the flow of energy and the acknowledged stress on, and vulnerability of, the existing system contributes to rising energy insecurities in the region. Considering this emerging situation, this report explores whether alternative solutions employing joint and/or multinational forces are worthwhile, and, if so, what the nature of a new approach ought to be and how the Air Force might play a constructive role.

### Strategic Significance of the Asian Energy Sea-Lanes

Free and open sea-lanes have been critical to the development and expansion of Asia’s economies. Inexpensive shipping along these sea-lanes enabled the region to become the world’s workshop, handling transport both of raw materials to Asian producers and of their manufactured goods to the global market.

The most critical resource transported to Asia by sea is energy. Today, Asia’s largest economies all depend on foreign sources of oil. As shown in Figure 1.1, China has been a net importer of oil since 1993 (Collins et al., 2008, p. 2), and Japan imports over 99 percent of its oil (U.S. Energy Information Administration [EIA], 2008c). Increasingly dependent on oil imports, India now imports about 70 percent of its oil and is expected to become the fourth largest importer in the world (behind the United States, China, and Japan) by 2025 (EIA, 2010c). Asian Pacific oil consumption has risen at a rate that far outpaces any other region in the world, growing from 17 percent of global daily consumption in 1983 to 31 percent by 2009 (BP p.l.c., 2010). The demand for foreign oil is expected to continue to increase. For example, EIA’s reference case projection in its 2010 Outlook shows Asia Pacific demand for liquid fuels increasing from about 25 million barrels per day (mbd) in 2009 to about 40 mbd in 2035 (EIA, 2010b). As illustrated in Figure 1.1, China became a net importer of oil in 1996, and its demand for sea-based imports has since been significant and rising ever more quickly.

**Figure 1.1**  
**China's Oil Production and Consumption, 1980–2010**



SOURCE: Data from EIA, 2012.

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The vast majority of energy imported to Asia travels by sea, much of it coming from the Middle East, passing through the Hormuz Strait, into the western Indian Ocean, through the Malacca Strait past Singapore, and into the South China Sea. Nearly 89 percent of India's oil imports arrive by sea (Ghosh, 2004), and 80 to 90 percent of the energy Japan, China, and South Korea import from the Middle East and Africa passes through the Southeast Asian sea-lanes (Storey, 2009a, p. 36), principally the Malacca Strait. China has plans for pipelines from Russia, Kazakhstan, and Burma to diversify energy sources and provide alternative distribution channels, but it will continue to rely heavily on sea-based imports. At full capacity, the pipelines will be able to transport only about 1.1 mbd of oil, the equivalent of about 14 percent of China's projected imports in 2015 (Kennedy, 2010, p. 140). Moreover, at least two of the proposed pipelines (Burma-China and Pakistan-China) will still require ships to move oil from the fields to the start of the pipeline (Erickson and Collins, 2010, p. 91).

Given this dependence on the sea for continued access to energy, countries in the region are increasingly worried about potential threats and disruptions to the sea-lanes. The Malacca Strait is the principal cause for concern because of its geographic position connecting the Indian Ocean to the South China Sea (Figure 1.2). The narrow strait (down to 1.7 nmi) is an obvious chokepoint, and the approximate 500-nmi length increases opportunities for attack. If there were a disruption in the Malacca Strait, ships could be rerouted through Indonesia's Lombok Strait, but this would increase transit time, expenses (because of the longer distance traveled), and navigational risks. Infrastructure and security on the Lombok Strait are, however, more limited than in the Malacca Strait, and it is unclear whether, on short notice, the Lombok Strait would be able to safely accommodate the increased traffic of a large-scale shift.

A significant energy disruption in Asia would be felt not only in the importing countries of that region but also in energy markets across the world. After the Hormuz Strait, the Malacca Strait is the world's most critical oil transit chokepoint, and even a temporary block-

**Figure 1.2**  
**Critical Sea-Lanes from the Middle East to Asia**



SOURCE: Map by Laura Canali, *Heartland: Eurasian Review of Geopolitics*, world partner of *Limes: Rivista italiana di geopolitica*. Used with permission.

RAND TR1144/3-1.2

age could increase total energy costs (EIA, 2008a). Oil is a fungible commodity, so the U.S. economy could still be affected through changes in oil prices, even if U.S. imports were not physically affected by a disruption (Crane et al., 2009). But perhaps most important, general insecurity over the future of the sea-lanes has the potential to threaten economic and political stability in the region and increases the probability of strategic miscalculation.

## Historical Approach to Sea-Lane Security

Historically, in times of peace, freedom of the seas has been achieved through shared commercial interests and the mutual benefits to user nations of unimpeded access to the maritime commons. In times of crisis (such as increased piracy), merchants and states have been more cautious at sea, adjusting routes, hiring additional security, and paying higher insurance premiums, all of which increase costs. During armed conflicts, such as World Wars I and II, naval vessels escorted commercial ship convoys to assure their secure access to the sea-lanes.

In the late 1800s, Alfred Thayer Mahan, considered by many to be the father of U.S. seapower, wrote about guaranteeing access to the seas as being key to national prosperity.<sup>1</sup> Since the early 20th century, the United States has played a leading role in maintaining sea-

<sup>1</sup> Mahan (1890) is a seminal work that still influences contemporary Asian naval strategists; see Holmes and Yoshihara, 2008.

lane security around the world by heavily emphasizing the freedom of the seas and, since the end of World War II, being the de facto protector of the maritime commons. Examples include the 1987 reflagging and escort of neutral Kuwaiti tankers during the Iran-Iraq war and the 1995 commitment of the U.S. Navy to escort and protect civilian ships as tensions flared in the South China Sea (Rosenberg and Chung, 2008, p. 53).<sup>2</sup> More recently, the 2010 *Quadrennial Defense Review Report* reconfirmed the importance of access to the maritime commons:

As other powers rise and as non-state actors become more powerful, U.S. interest in, and assured access to, the global commons will take on added importance. The global commons are domains or areas that no one state controls but on which all rely. They constitute the connective tissue of the international system. Global security and prosperity are contingent on the free flow of goods shipped by air or sea. (Department of Defense [DoD], 2010, p. 8)

The oil security mission is so significant it has even been factored into U.S. Navy force sizing, as indicated by its expanded presence in the Persian Gulf and the reactivation of the 5th Fleet in 1995 (Crane et al., 2009, p. 70).

## Potential Value of Joint and Multinational Approaches to Sea-Lane Security

While assuring the security of the world's sea-lanes has been the domain of the U.S. Navy since Mahan's day, affordability concerns and evolving geopolitical realities may call for a more joint and/or multilateral approach to sea-lane security in the future. Over the past 20 years, from approximately 1990 to 2010, the U.S. Navy ship force structure has fallen to one-half of its Cold War-era size. At the same time, many Asian nations (including China, India, and South Korea) are expanding and modernizing their maritime capabilities—a reflection of their growing economic stature and expanding international interests. The emerging multipolar environment and the current and foreseeable need for cost sharing suggest it is time to evaluate the feasibility of transitioning from yesterday's U.S. Navy-dominated model of Asian sea-lane security to one that is more cooperative.

## Organization of This Report

This exploratory study investigates potential joint and multinational approaches to improving security confidence in Asian energy sea-lanes. Chapter Two discusses possible threats to energy assurance in the Asia-Pacific region. Chapter Three identifies existing national capabilities and multinational mechanisms for securing the region's primary energy sea-lanes (the appendix gives additional information on organizations). Chapter Four explores the potential benefits of a more collaborative approach, while Chapter Five identifies possible hurdles to implementing a cooperative sea-lane security regime. Chapter Six identifies the desired attributes for an alternative solution and the key steps for implementing a new joint and multinational approach to

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<sup>2</sup> The U.S. Navy was one of several Western navies that patrolled the Gulf during the Iran-Iraq war but was the only one to reflag vessels (making them eligible for escort). Kuwait asked the Soviet Union for similar protection, but the U.S. decision evidently blocked or negated the need.

sea-lane security. Chapter Seven concludes by offering perspective on joint and multinational approaches to Asian sea-lane security.



## Threats to Sea-Lane Security

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A wide array of potential and perceived threats and a variety of perpetrators challenge the continued flow of energy through the Asian sea-lanes. Current security mechanisms could be inadequate to meet the region's evolving needs. This chapter explores the different types and tiers of threats to Asian sea-lanes. As we will show, the probability of a major energy disruption is low, but the effect of one would be very serious. Since September 11, 2001, perceptions that energy resources are vulnerable have heightened fears in the region.

### Current and Foreseeable Threats

In the context under discussion, threats are anything that would disrupt, block, or otherwise discourage the use of these waterways to transport energy. These threats to sea-lanes can be categorized into three tiers according to the primary belligerents:

- nonstate threats—examples include natural disasters, piracy, criminal activities, and terrorist attacks
- threats emanating from failed or rogue states—states may provide safe haven for Tier I activities and, in the case of a rogue state, may actually be the sponsor
- capable state-level threats—national actors may use coercion or force to advance their own interests, including threats or actual use of force against energy transport means.

The level of risk associated with activities in each of these tiers is explored further below.

### Tier I: Nonstate Threats

While threats from nonstate actors and natural phenomena are the most common, they are also the most difficult to predict because of their number and variety. The historical record suggests that, typically, the scope and duration of the disruptions nonstate actors can execute are limited. States in the region have also had the most practice preventing and responding to this class of threats, making them less risky than those we will discuss later.

#### Natural Events

The most basic type of nonstate threat to energy flows is the disruption caused by natural events, such as volcanic and seismic activity, tsunamis, and cyclones, all of which are prevalent in the Indian Ocean and Southeast Asia. The Bay of Bengal, similar to other regional seas,

experiences cyclones as often as two to four times per year (Khurana, 2006, p. 98). Earthquakes are also common and particularly dangerous because they can set off tsunamis, as occurred in the Indian Ocean on December 26, 2004, when an earthquake and tsunami killed over 225,000 people.

Natural events are most likely to disrupt the transfer of energy at port terminals and operations at coastal refineries but are less of a problem for energy tankers at sea during the event. While natural disasters can seriously damage coastal infrastructure, the effects of these events on regional energy flows is limited by the availability of alternative facilities.

### Piracy

Piracy is endemic and a growing problem across the Indian Ocean from the coast of Somalia through the Malacca Strait. In Southeast Asia, the main trouble spots are the waters around the Indonesian archipelago and the South China Sea. Activity in the Malacca Strait, for many years the most active piracy corridor, has declined markedly in the past, primarily as a result of increasingly frequent and effective joint and aerial patrols in the region. In 2009, a total of 45 actual and attempted attacks were recorded in Southeast Asia, with Indonesia accounting for one-third of these incidents; in contrast, only two incidents occurred in the Malacca Strait (International Maritime Bureau, 2010, p. 5). Table 2.1 lays out the typical types and settings for attacks. Most acts of robbery and piracy in Southeast Asia take the form of port thefts or the ransacking of vessels (either in territorial waters or on the high seas). Attacks tend to have elements of violence associated with them, including on the high seas, with crew members known to be shot or thrown overboard. In such instances, ships are usually left to drift, which has significant implications for the safety of maritime navigation in heavily congested sea-lanes (Chalk, 2008, pp. 5–6).<sup>1</sup>

Today, the leading site of piracy is around the Horn of Africa, which encompasses the Gulf of Aden, southern Red Sea, and wider Somali Basin. This region is of interest because of the recent rise in significance adjacent to the sea-lane of interest and the aggressive and brazen nature of some of the pirating. In 2009, this region accounted for around 52 percent of all global incidents (International Maritime Bureau, 2010, p. 6). The models of piracy differ between the Horn of Africa and Southeast Asia because of the availability or unavailability of an ungoverned space to operate from, the geographies of the two regions (open ocean versus

**Table 2.1**  
**Nature of Piracy Attacks**

	Horn of Africa	Malacca Strait
Geography	Open ocean	Confined waters
Time of attack	Day	Night
Weapons	Heavily armed	Lightly armed
Type of attack	Hijackings	Port thefts
		Vessel ransacking

<sup>1</sup> The nightmare scenario is a midsea collision between an unmanned pirated vessel and an oil tanker. The resulting discharge of petroleum would not only extensively damage offshore resources and marine life, it could, if left to drift, seriously destroy or damage extensive stretches of fertile coastline.

confined waters), and the *modus operandi* of the pirates (day or night; armed heavily or lightly, but lethally) (Bateman and Bergin, 2010, p. 27). In the Horn of Africa, these attacks tend to take the form of hijackings. Because the basic objective is to secure as high a ransom payment as possible, most are also nonviolent, as the perpetrating parties have a vested interest in preserving the integrity of their hostages. That said, pirates operating off the Horn of Africa have access to a broad array of weapons, including rocket-propelled grenades and light- and heavy-caliber machine guns and assault rifles, and could very well bring these arms to bear against any ship with a private security detail.<sup>2</sup> They have also demonstrated a proven capacity to board and take over very large oceangoing vessels. In November 2008, Somali pirates hijacked the Saudi-owned large crude carrier *Sirius Star*, and in November 2009, Somali pirates captured another supertanker, the Greek-owned *MV Maran Centaurus*. At 1,080 and 1,090 feet long, respectively, these ships are approximately as long as a U.S. aircraft carrier (Worth, 2008; “Supertanker Maran Centaurus Seized off Somalia,” 2009). Additionally, these pirates operate far from their home base, as when in November 2010 the *MV BC Orinoco* was attacked approximately 450 miles off the coast of Mumbai.

There is little reason to believe that the incidence of piracy and armed robbery in the Indian Ocean will drop in the short to medium term. Many littoral states lack the means to effectively secure their coastal waters, and poverty, a lack of economic opportunity, and the promise of potential rewards—compounded by the willingness of shipping companies to pay increasingly large ransoms<sup>3</sup>—provide powerful incentives for pirate attacks.<sup>4</sup> At the same time, the probability of being apprehended, much less prosecuted, is extremely low, which means the possibility is a poor deterrent to engaging in piracy in the first place.

In terms of broad regional trends, piracy and armed activity are likely to shift southward down the East African coast and westward into the Indian Ocean in response to heightened coalition naval patrols in the Gulf of Aden. The International Maritime Bureau (IMB) reports that pirates have been found operating at increasing distances from shore; attacks launched from mother ships have occurred as far as 1,000 nmi from the Somali coast (ICC Commercial Crime Services, 2010).

Although piracy is likely to remain an international problem, the risk to regional energy supplies appears to be relatively low. In Southeast Asia, gangs seldom attempt to hijack ships (lacking a secure territorial haven in which to hold captured vessels). Instead, these groups largely target the payloads of commercial freighters and fishing trawlers, but not oil tankers. While Somali syndicates have certainly demonstrated both a willingness and ability to seize major crude carriers, such as the *Sirius Star*, the probability of an attack remains low. Even in the Gulf of Aden, the current hotbed of piracy, the probability of a vessel being boarded and put at risk is less than 0.5 percent given the number of ships transiting this corridor (International Maritime Bureau, 2009). While increasing piracy can increase insurance rates for

<sup>2</sup> For contemporary accounts of attacks, see Gettleman, 2009; Freeman, 2009; Schiemy, 2009, p. 45; and “Navy Thwarts Pirate Attack Off Mumbai Coast,” 2010.

<sup>3</sup> Shippers are prepared to pay for the release of their vessels largely because doing so is cheaper than the loss of the ship, its cargo and crew, or paying for fleetwide security measures. They also argue they have little option but to negotiate, as international navies rarely, if ever, move to free a captured vessel.

<sup>4</sup> In 2009, Somali pirates netted an estimated US\$30 million to 150 million in ransom payments (“Ships Held by Somali Pirates,” 2009; McGregor, 2009). Shipping companies also pay ransoms because they would find it nearly impossible to crew their ships if it were known that no steps would be taken if the crews were taken hostage.

shipping companies, piracy does not pose a significant threat to international maritime trade (Chalk, Smallman, and Burger, 2009, pp. 2–3).

### **Terrorism**

Another nonstate threat to energy security is terrorism (see also Chalk, 2010). Terrorists could be drawn to tankers and energy infrastructure both for their symbolic value and for the potential for the disruption to have a negative global economic effect (in the form of higher oil prices).

The Indian Ocean and contiguous waters have witnessed several actual or attempted acts of terrorism in the since 2000. Prominent examples include the suicide bombing of the very large crude carrier MV Limburg (2002), attacks on the Khor al-Amaya and al-Basra oil terminals in Iraq (2004), the planned strikes on underwater gas lines running between Israel and Egypt (2009), and a plot to target Western ships transiting the Suez Canal (2009).<sup>5</sup> In May 2009, al-Qaeda issued a global communiqué exhorting jihadists to attack oil production and processing sites as part of a wider economic war against the West (International Institute for Counter-Terrorism, 2009, p. 8). This call to arms was seen to be particularly relevant to the Indian Ocean, given its importance as an international maritime corridor carrying over one-fifth of the world's energy supplies (Laipson, 2009). Most recently, in July 2010, a Japanese-owned oil tanker was damaged in the Hormuz Strait in what is believed to have been a terrorist attack; the Abdullah Azzam Brigades, a group affiliated with al-Qaeda, claimed responsibility (Watkins, 2010).

However, the main focus of terrorism concern lies with groups in Somalia and Yemen. In 2010, al-Shabab announced for the first time its solidarity with al-Qaeda and readiness to stage attacks off the Horn of Africa in pursuit of the latter's ideological and militant agenda (Yusuf, 2010). Al-Qaeda in the Arabian Peninsula is also directly linked to the international jihadist enterprise, and there are fears that the group will seek to stage further attacks against the United States by targeting commercial carriers transiting the Gulf of Aden and contiguous waters ("Q&A: Yemen's al-Qaeda Wing Gains Global Notoriety," 2010). According to the Office of Naval Intelligence, the organization declared a "mass media" campaign in December 2009, urging Muslims to gather all relevant information on American ships transiting near Yemen, including data on their payloads and crews and how they are serviced by other nations (Gertz, 2010).

Although there has been speculation that terrorists may seek to hijack and then detonate a petroleum or liquefied natural gas (LNG) tanker as a floating bomb or attempt to block a critical chokepoint by scuttling a container ship, neither scenario necessarily appears probable. Igniting pressurized LNG or oil may be technically difficult and more complex than commonly portrayed. Explosive test data indicate that, unless LNG vents in its liquid form and mixes with air in the correct ratio, the probability of full ignition is extremely low (Murphy, 2007). Even if this did occur, the lateral force of any subsequent explosion would likely be contained by the tanker's hull, thus forcing the destructive energy upward rather than outward (minimizing its destructive potential) (Murphy, 2006, p. 21). However, actual damage remains uncertain, since estimates tend to be based on engineering judgments and lack full-scale testing. Sinking a major oceangoing freighter is equally challenging and would, at a

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<sup>5</sup> For additional details on these attacks, see Haj, 2004; Perry, 2005; and Slackman, 2009.

minimum, require the perpetrators to have ready access to a large quantity of explosives, the time and means to transport it, and the expertise to know where to place bombs to cause a critical breach. These logistical and knowledge barriers would be formidable for a single attack, much less an assault that targeted two or three ships (which would be required to effectively close down a maritime corridor) (Chalk, 2008, p. 23; Blair and Lieberthal, 2007, p. 11). As the limited damage from the July 2010 attack on the Japanese tanker MV M Star illustrates, it is extremely difficult to disable a large tanker. Explosives detonated near the hull did not spill any oil, and the ship made it to a United Arab Emirates port under its own power (Watkins, 2010).

External ramming using a fast inshore attack craft represents a more realistic threat scenario and has a far greater prospect of causing extensive damage. These vessels are cheap, easy to handle, and anonymous enough to mingle with other marine traffic—particularly at ports of call where harbor patrols and/or surveillance are not particularly extensive (Murphy, 2006, p. 23).<sup>6</sup> However, even in these instances, the prospect of a critical breach is questionable. As the attack against the MV Limburg illustrates, if the site of the impact does not accord with weak points in the craft's skeletal design, critical damage to a large oceangoing vessel appears unlikely (Herbert-Burns, 2005, pp. 164–165).

Nonetheless, despite their limited physical influence on oil supplies, terrorists can affect the psychology of the energy market and can contribute to higher oil prices. Jemaah Islamiya, for example, is seeking maritime capabilities (Fattouh, 2007, p. 13).

## Tier II: Failed and Rogue State Threats

Tier II threats involve many of the same tactics nonstate actors use. The existence of failed states increases the opportunity for piracy and terrorism, while rogue states may attempt to use these and other methods to disrupt energy distribution for their own objectives. While neither failed nor rogue states currently exist within the region of interest, the potential for various states to transition to rogue status cannot be ignored. Within the region, Bangladesh, Indonesia, Cambodia, and Thailand have all experienced unrest recently and are not yet free of the risk of further destabilization. Both Pakistan and Burma have also been referred to as being among “the least stable countries in the world” (Kaplan, 2010a, p. 180).

Failed states and their attendant ungoverned spaces can serve as safe havens and operational bases for criminals and terrorists. A RAND conference on piracy highlighted the roles governance and society play in enabling piracy. Chalk, Smallman, and Burger, 2009, p. xi, cites three main enabling factors:

- governance—to include that of the coastal society and maritime domain
- economics—how financial considerations, costs, and possibly profit affect the use of the sea and the coastal societies
- society—the extent to which a perturbed coastal society allows exploitation of disorder to its immediate maritime domain.

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<sup>6</sup> In the United States and most European ports, fast inshore attack craft would have somewhat less opportunity to cause harm than they would in other areas of the world—as the extensive measures in place around ships entering or leaving docks specifically provide an effective outer layer of defense against this type of attack.

The same conditions also make a country a more attractive to terrorists. Somalia is a prime example of how a failed state can challenge sea-lane security by being used as a base for criminal operations. As long as there is no effective government in Somalia, the ability to counter the menagerie of gangs that currently plough the seas off the Horn of Africa will be minimal. Further, the availability of enabling technologies and the target-rich environment the commerce of a globalized world present act as accelerants to the pirates' desire to establish havens.

A state in the process of failing may also pose a threat to sea-lanes. For example, in a country that is unstable because of a civil conflict, a separatist group could use small boats to disrupt trade or harass ships in an effort to pressure the government in power to meet its demands.

Rogue states, which do not subscribe to international laws and norms, can also endanger sea-lanes. Throughout history, there have been instances of state-sanctioned piracy, with the Barbary pirates perhaps being the most notable example. Just as such countries as Iran and Syria have supported such groups as Hezbollah to advance their own political objectives, states could similarly sponsor terrorist activity at sea. Rogue states could also employ conventional military power to disrupt shipping. Such actions could be used in an effort to influence developments in the region or as a way of imposing penalties against a block of states working against the rogue. Iran's war games in April 2010 highlight the type of tactical threat rogue regimes could pose to international shipping. Held in the Persian Gulf and Hormuz Strait, the "Great Prophet 5 Naval Maneuvers" included having small, high-speed boats of the forces of the Islamic Revolution Guard Corps swarm, seize, and destroy a hypothetical enemy warship ("IRGS Conducts Drills . . .," 2010).

### **Tier III: State-to-State Conflicts**

State-to-state conflicts might interfere with the distribution of energy in two ways: a state could deliberately disrupt the flow of energy as a form of coercion, or a violent conflict between states could make it too dangerous for energy tankers to transit the sea-lanes. Given the historic and current geopolitical tensions in the region between key powers (India and Pakistan, China and India, Japan and China) and the ongoing disputes over territorial claims and boundaries, a confrontation between states is not outside the realm of future possibilities.

The Iran-Iraq war is a historic precedent for the deliberate disruption scenario. In the so-called Tanker War, which lasted from 1981 through 1988, both Iraq and Iran targeted each other's merchant ships and those of neutral countries in the region. In the future, a state might resort to deliberate disruption to change another state's (or its third-party supporters') behavior on an entirely unrelated issue. For example, should China attempt to divert more water from the Himalayan glacial melt, India could respond by attempting to block the maritime transport of oil to China until the water situation has been addressed to its satisfaction.

An example of the second scenario is the potential for a conflict over unresolved territorial and maritime boundary disputes in the region. At least four sets of islands are currently under dispute,<sup>7</sup> and debates continue over lines of demarcation across territorial waters. In the East China Sea, both China and Japan lay claim to the Senkaku/Diaoyu islands and have an ongoing disagreement about rights to the development of natural gas fields. In the Bay of Bengal,

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<sup>7</sup> Territories in dispute include Senkaku/Diaoyu, Natuna, Paracel, and the Spratly Islands.

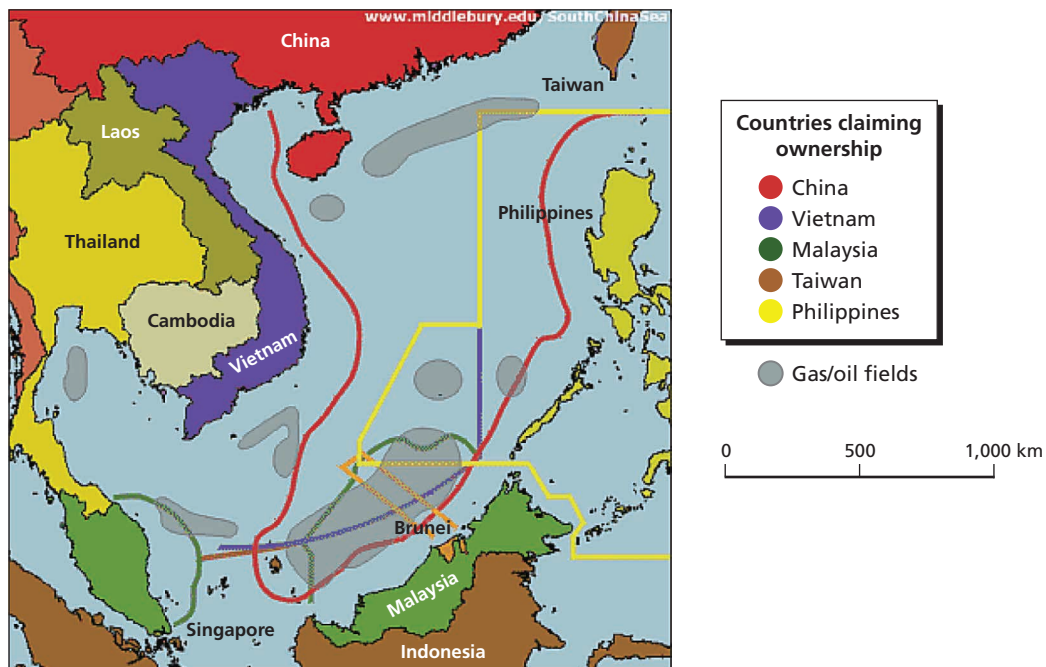
there have been naval standoffs between Bangladesh and Burma over claims to hydrocarbon resources.

But the greater threat is likely in the South China Sea, where disputes exist over claims to the Natuna, Paracel, and Spratly Islands and over the sea itself (see Figure 2.1). Disputes are motivated by the postulated presence of hydrocarbons under the seabed and by the islands' strategic location. One of the more moderate Chinese estimates suggests the potential oil resources of the Spratly and Paracel islands could be as much as 105 billion barrels, and proven natural gas reserves of 4 trillion to 6 trillion cubic feet have been surveyed near the Spratlys (total natural gas resources in the area may be in the hundreds of trillion cubic feet) (EIA, 2008b).

In 1992, China enacted its "Law on the Territorial Waters and Their Contiguous Areas," claiming sovereignty over all island territories in the South China Sea (Collins et al., 2008, p. 189). In 2011, in meetings with U.S. officials, China referred to the South China Sea as a "core interest," a term it has previously used to refer to Tibet and Taiwan (Stokes, 2010). Further indicating the importance China places on this sea, an English-language tabloid published by the Communist party-run People's Daily newspaper said, "China will never waive its right to protect its core interests with military means" (Jacobs, 2010). However, the Natuna Islands have long been recognized as Indonesian; the Paracels are claimed by both China and Vietnam; and portions of the Spratlys are claimed by China, Taiwan, Vietnam, the Philippines, Malaysia, and Brunei. These overlapping claims create conditions ripe for conflict.

Generally, confrontations in these disputes take the form of harassment of the other claimant's vessels; however, there have been a few violent incidents, most notably between China and Vietnam. The worst of these was the dispute over the Paracels in 1988, when China

**Figure 2.1**  
**Overlapping Territorial Claims in the South China Sea**



SOURCE: SouthChinaSea.org, undated. Used with permission.

RAND TR1144/3-2.1

sunk several Vietnamese ships, killing 70 Vietnamese sailors (EIA, 2008b). As states become increasingly concerned about foreign energy dependence and/or when the existence of hydrocarbons is confirmed, the likelihood for conflict over these territories will inevitably increase. Already, China has taken a greater interest in and is seeking to extend its control over the South China Sea. It has built a new underground submarine base on Hainan Island, and a Chinese official, in the same March 2010 meeting in which he referred to the area as a “core interest,” told two senior U.S. officials that China would not tolerate interference in the South China Sea (Wong, 2010). Such posturing is of particular concern because of the proximity of these disputed island chains to sea-lanes critical for shipping to and from China, Japan, and Korea. More than half of Northeast Asia’s imported energy supplies pass through the South China Sea (Stokes, 2010).

Some of the dynamics underlying a future Tier III conflict—national capabilities and regional security mechanisms—are dealt with more fully in Chapter Three’s discussion of states’ increasing investment in maritime capabilities.

## Threat Assessment

For several reasons, the probability that a major regional conflict involving Tier III threats interfering with sea transportation of oil is currently low despite the potential. The three states in Southeast Asia that have the greatest ability to interfere with transiting the Malacca or Singapore strait are Indonesia, Malaysia, and Singapore. However, far from seeking to obstruct shipping in this region, these countries now actively cooperate to protect it (Blair and Lieberthal, 2007, p. 10). It is difficult to imagine a situation that would change this calculus in the near to middle term. Indeed, when the Lloyds of London Joint War Council designated the Malacca Strait an area of enhanced risk, the three littoral states joined together in a show of unprecedented solidarity and dramatically stepped up their collaborative efforts to reassure the international community of the safety of the sea-lane (Chalk, Smallman, and Burger, 2009).

The mouth of the Gulf of Arabia is similarly well protected, thanks to the current effort to stem piracy, a Tier I threat, off the Horn of Africa. Apart from three international naval coalitions—Combined Task Force 151 (CTF-151), the European Union’s Atalanta, and NATO’s Ocean Shield—a number of other states have also sent frigates to protect and/or escort shipping off the Horn of Africa, including India, Russia, Pakistan, Saudi Arabia, the Netherlands, Malaysia, and even China. South Korea, Japan, and the United Arab Emirates were added to this complement in 2010. All told, roughly 14 national navies are currently operating in the region, with a collective deployment of around 60 ships patrolling the region at any one time (Chalk, Smallman and Burger, 2009, pp. 3–4; Kraska and Wilson, 2009; Combined Maritime Forces, 2009; England, 2010; “More Russian Ships . . .,” 2010). This heightened visibility has already substantially shifted the piracy operating areas and should work to stem any state-instituted action undertaken against ships entering and transiting the Gulf of Aden.

The risk of potential disruption from Tier II or III threats is somewhat greater in the Hormuz Strait. Here, Iran could target tankers with coastal antiship Silkworm missiles, patrol boats and short-range aircraft launched from nearby bases, or fast in-shore attack craft packed with explosives. However, any such course of action would inevitably affect the ships of many neutral countries, harming Tehran’s international standing as a bona fide and trusted maritime trading state. Just as importantly, a coalition of nations having an interest in maintaining

the free flow oil from the Persian Gulf would probably form to protect crude carriers passing through this particular sea-lane (as occurred during the Tanker War in the 1980s) (Blair and Lieberthal, 2007, p. 10)—to say nothing of Iran's self-interest in maintaining its oil export cash cow.

Beyond these considerations, it is worth noting that tankers are much less vulnerable to attack than is commonly thought. Sinking any sizable vessel with a high waterline and double-lined hull is technically challenging and expensive. Increasing numbers of commercial vessels are traveling at higher speeds (typically in excess of 20 knots), making them much more difficult to intercept (Author interview, maritime analysts, Copenhagen, March 2010). Mines, which have never been that effective against tankers,<sup>8</sup> now pose even less of a threat because of better ship design and improved skeletal and structural integrity. Finally, the likelihood of missiles sinking a crude carrier is similarly low and would require a battery of munitions that most states simply do not have:

Most missiles shot at a tanker would explode on its large deck, causing minimal damage. Even if they penetrated the deck, they would explode inside tanks where the liquid oil or the water in the ballast would absorb the blast without igniting. In order to disable a modern-day tanker, an attack would have to include a salvo of eight to ten missiles with conventional warheads; a sustained campaign would quickly exhaust the missile stockpile of a medium-sized military power. (Blair and Lieberthal, 2007, p. 10)

The effects of an energy disruption have been further reduced by the creation of oil stockpiles in the region. China is believed to have the equivalent of 50 days of imports in its strategic petroleum reserves and aims to have a 90-day supply in its reserves by 2020 (Collins et al., 2008, p. 7).

While the likelihood of a major energy disruption (both in terms of length and the quantity of energy affected) is low, the effects of such a disruption would be very serious. Perceptions that energy supplies are vulnerable have heightened fears within the region, leading to both national and regional efforts to improve maritime security.

To recap, the threat to energy security, as it relates to sea-lanes to Asia, can be conceptualized in three tiers of increasing significance, but decreasing probability.

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<sup>8</sup> During the Iran-Iraq war, several tankers ran across mines without sustaining significant damage because of the tankers' size and the protective effects of the liquid petroleum they carried. Mines did, however, disable two U.S. Navy combatants during Operation Desert Storm (ODS).



## Current Sea-Lane Security Capabilities and Mechanisms

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Current, regional maritime security efforts are joint efforts, with states working bilaterally with neighbors. In recent years, the number and variety of multinational security mechanisms have grown markedly, but their efforts to date toward sea-lane security remain limited and disjointed. The openness of countries to participating in such forums, however, suggests an increased understanding of the necessity of and benefits of greater coordination and cooperation in this area. This is indicative of broader cooperative trends in the region.

### National Capabilities

In the region, the capacity to respond to maritime threats varies considerably from nation to nation. In recent years, several states have undertaken naval modernization programs, equipping themselves with more capable systems potentially suitable for sea-lane security missions. Another trend among key powers in the region is the attempt to build up the capacity of less capable states through bilateral training and equipping arrangements.

#### United States

The United States maintains a significant naval presence in the region, both as a deterrent and as a response force, for demonstrating and refining its capabilities. The United States regularly hosts a number of bilateral and multilateral naval exercises in the region (see Table 3.1).

The United States also supports the region's maritime security forces through legislatively granted authority to build partnerships.<sup>1</sup> Assistance often takes the form of equipment transfers and monetary contributions. Contributions under these authorities include funding to the Kuala Lumpur-based South East Asia Regional Center for Counter-Terrorism (Khalid, 2009, p. 432), which provides training and capacity building to law enforcement and security officials of the littoral countries, 15 patrol boats for Indonesia's Marine Police, and financial assistance to the littoral countries of the Malacca Strait to improve maritime domain awareness capabilities (Khalid, 2009, p. 432).

Should a major disruption occur, the U.S. Navy's facilities and base access in the region, including at Diego Garcia, Singapore, and Okinawa, position it to be able to send a response force.

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<sup>1</sup> This mechanism was first introduced in Section 1206 of the National Defense Authorization Act for 2006, which authorized DoD to transfer funds to the Department of State (DOS) to provide "equipment, supplies, services, training, and funding" to build the "partnership security capacity" of foreign nations.

**Table 3.1**  
**Selected U.S. Maritime Exercises in the Asia-Pacific Region**

Exercise	Description	Non-U.S. Participants
Cobra Gold	Annual military exercise	Thailand, Singapore, Japan, Republic of Korea, Indonesia
Cooperation Afloat Readiness and Training	Annual series of bilateral naval exercises	Brunei, Cambodia, Malaysia, Philippines, Singapore, Thailand
Malabar	Annual bilateral exercise and Indian navies	India and, periodically, Australia, Japan, and Singapore
Rim of the Pacific (RIMPAC)	Biennial maritime training exercise that included interdiction exercises in 2010 ("Combined Agility, Synergy, Support")	Australia, India (observer), Indonesia, Japan, Republic of Korea, Malaysia, Singapore, Thailand, and others (2010)
Southeast Asian Cooperation Against Terrorism	Annual weeklong at-sea exercise focusing on interception	Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand (2009)

### China

From the early 1990s to 2012, China has dramatically increased its naval capabilities, reflecting a broadening of its maritime interests beyond securing the Taiwan Strait. These interests include

concerns about international terrorist organizations, disruptions to the global economy, protection of the oceans as a "vehicle for mutual commerce," protection of China's enterprises overseas, and its dependence on distant supplies of raw materials. (Dutton, 2009, p. 15)

As discussed earlier, China's appetite for secure energy imports (the preponderance of which come from the sea) is increasing in proportion to its economic growth. To enhance the security of its petroleum imports, China has taken a number of indirect actions.

In 2003, the People's Liberation Army Navy (PLAN) held a joint exercise off China's coast with the Pakistan Navy; this was the first time China had ever conducted naval exercises with a foreign country (Sakhuja, 2009, p. 12). This was followed by another bilateral exercise with Pakistan in 2005 and the Pakistan-led Aman exercises in 2007 and 2009. The biennial Aman exercise, which includes nine other navies,<sup>2</sup> promotes training to combat illegal activities in the Arabian Sea, a major thoroughfare for energy shipments. PLAN has also conducted joint exercises with the Russian Navy, including the 2005 Peace Mission under the Shanghai Cooperation Organization and Blue Peace Shield 2009, a bilateral exercise in the Gulf of Aden focusing on "counterpiracy operations, replenishment-at-sea, and live firing" (Sakhuja, 2009, p. 13). Other bilateral Chinese maritime exercises have included Thailand and India (Storey, 2008).

China has also supported international antipiracy efforts via United Nations (UN) Security Council Resolution 1816, by sending ships to patrol the coast of Somalia and by participating in Shared Awareness and Deconfliction (SHADE) meetings. The strategic rationale China

<sup>2</sup> Participants included Australia, Bangladesh, France, Japan, Kuwait, Malaysia, Nigeria, Turkey, the United States, and the United Kingdom.

has given for this uncharacteristic intervention included the duty to protect ships sailing under the Chinese flag—several were attacked in the region in 2008 (Dutton, 2009, p. 16).

Closer to home, China has pursued cooperative agreements with the Malaccan littoral states in an attempt to influence management of the strait. In 2005, China offered Indonesia, Malaysia, and Singapore capacity-building support for security and safety; however, this promise has not amounted to much in terms of assistance (Storey, 2009b). Bilateral cooperation with Thailand included the signing of a Joint Action Plan in 2007 that called for greater military cooperation on a variety of issues, including nontraditional threats, such as piracy (Storey, 2008).

Reflective of China's increased engagement in the Indian Ocean region is its support for the development of deep-water commercial ports along its vital sea-lanes in the Indian Ocean. Ports currently under development include Gwadar, Pakistan; Hambantota, Sri Lanka; Chittagong, Bangladesh; and Sittwe, Burma. While these ports are not military bases, they could serve as supply depots for China's naval forces (Hoffman, 2010, p. 54), enabling it to conduct operations further from its shores. The development of these overseas ports raises concerns for India, the United States, and other countries in the region about China's long-term regional and naval ambitions.

Yet despite significant improvements in China's naval capabilities, many observers believe PLAN remains too small and poorly trained to secure its maritime energy interests through unilateral large-scale blue water patrols or to protect sea-lanes under contested conditions (Collins et al., 2008, p. 5). Other concerned observers find China's growing out-of-area operations disconcerting and perceive these initial operations as harbingers of potentially more assertive behavior.

## India

India takes a particular interest in sea-lane security because of its geographic position astride key sea-lanes and its rapid economic development, which, like China's, depends on continued access to energy resources. In recent years, India has invested heavily in naval modernization and now has a sizable force led by an aircraft carrier, 44 surface combatants, and 16 diesel submarines (International Institute for Strategic Studies, 2010, p. 361).

The 2008 Mumbai terrorist attack, in which the perpetrators entered the country by sea, highlighted the inadequacies of India's maritime security system. This prompted a new emphasis on coastal surveillance and has led to government initiatives to strengthen the Indian Coast Guard and to improve its coordination with marine police and the Indian Navy. New capability investments include more maritime patrol aircraft; a chain of 46 coastal radar and Automatic Identification System (AIS) sites; and plans for a national command, control, communications, and intelligence network for maritime domain awareness (Mazumdar, 2009). Such improvements may also enhance India's ability to protect nearby sea-lanes.

India's efforts to enhance maritime security extend throughout the Indian Ocean. This includes providing surveillance helicopters to the Seychelles and Maldives and plans to provide the Maldives with a maritime radar system networked to Indian Navy and Coast Guard headquarters (Raghuvanshi, 2010). The Indian Navy also conducts training exercises with the navies of nearly every Indian Ocean coastal state (Bradford, 2005, p. 78). India leads the bien-

nial Milan exercise series,<sup>3</sup> which aims to improve interoperability among the participating nations. In 2010, the exercise focused on sea-lane security (Sakhuja, 2010).

Additionally, India has signed maritime security cooperation agreements with two key powers in the Pacific region: the United States and Japan. The U.S. agreement pledges cooperation “to protect the free flow of commerce” (“Indo-U.S. Framework for Maritime Security Cooperation,” 2006), while the Japanese agreement includes “exercises, exchanges and training on issues such as anti-piracy and transnational crimes,” and greater coast guard cooperation (Ministry of Foreign Affairs of Japan, 2009b).

India has also sought an active role in securing the Malacca Strait. In 2001 and 2002, India participated in U.S. naval escort operations there. In 2003, it reached an agreement with Singapore to improve maritime and counterterrorism cooperation, which led to planning for joint exercises on sea-lane control (Bradford, 2005, p. 77). In 2004, India began coordinating joint patrols of the Six Degree Channel (a waterway between Indonesia’s Aceh Province and India’s Nicobar Islands) with the Indonesian navy (Bradford, 2005, p. 78; Khurana, 2006, p. 101). India also participates in coordinated naval patrols with Thailand (Rosenberg and Chung, 2008, p. 58). It has been suggested that, in the future, India could use islands in the Andaman and Nicobar archipelago to control the western entrance to the Malacca Strait (Bateman and Bergin, 2010, p. 20).

### Japan

Because of Japan’s economic dependence on the sea-lanes, “safety of navigation is vital to Japanese comprehensive security and a major policy objective” (Bradford, 2005, p. 76). Japan has tried both direct and indirect approaches in its effort to ensure the flow of commerce through the Malacca Strait. In 2000, Japan offered its coast guard to conduct joint patrols of the strait with the littoral states (Indonesia, Malaysia, and Singapore), but its offer was rejected by all three. Since that time, Japan has become less direct, conducting joint exercises and training foreign personnel (Christoffersen, 2009, p. 118). This strategy emphasizes the sovereignty of the littoral states while building capacity (Sato, 2007).

The Japanese Coast Guard (JCG) has taken the lead in Japan’s maritime security activities in Southeast Asia. This is likely due to its expansive authority under Japanese law. Unlike the Japan Maritime Self-Defense Force, the coast guard can initiate armed conflict if it sees suspicious activity (Christoffersen, 2009, p. 115). The JCG has bilateral training and exercise agreements with the maritime law enforcement arms of at least six Southeast Asian countries (Bradford, 2005, p. 77). Japan has also trained with China and South Korea (Sato, 2007). It cooperates extensively with Malaysia and the Philippines, including conducting antipiracy training with both states, designing training curricula for the Philippine Coast Guard and advising Malaysia on establishing its own coast guard (Bradford, 2005, p. 83). In 2000, the JCG initiated the North Pacific Coast Guard Forum to foster multilateral cooperation between the region’s coast guards on maritime security, maritime domain awareness, and related issues. Members include Canada, China, Japan, South Korea, Russia, and the United States. The group’s activities have included combined operations at sea. In 2004, Japan helped initiate the Asia Maritime Security Initiative, which brought together government officials, coast guards,

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<sup>3</sup> Participants include Australia, Bangladesh, Burma, Indonesia, Malaysia, Singapore, Sri Lanka, and Thailand, as well as observers from Brunei, the Philippines, Vietnam, and New Zealand.

the International Maritime Organization (IMO), and IMB to share information and work on regional technical assistance (Rosenberg and Chung, 2008, p. 56).

Japan also provides aid to other countries for maritime security enhancements. In 2006, Japan initiated the Grant Aid Program for Cooperation on Counter-Terrorism and Security Enhancement and pledged funding through the Association of Southeast Asian Nations (ASEAN) Integration initiative. The aid program “would cover provision of maritime enforcement vessels, protection of harbors and airports, capacity building of law-enforcement agencies and others” (Suda, 2006). In 2007, Japan donated three patrol boats to Indonesia’s marine police.

Since the mid-1990s, Japan has attempted a number of multilateral initiatives to combat piracy. The Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP) (discussed in greater detail later in this chapter) is the first multilateral Japanese proposal to succeed. Japan’s Ministry of Foreign Affairs is now passing aid for capacity building through ReCAAP, while providing equipment assistance through bilateral channels (Sato, 2007).

### **Australia**

Although Australia’s navy is smaller than those of other powers in the region, it is a modern and highly capable force. Through its Plan Blue initiative, Australia will upgrade or replace significant portions of its surface fleet. Australia has also joined the U.S. P-8 maritime patrol aircraft program and maintains the Australian Maritime Identification System, which provides maritime domain awareness in the country’s offshore areas (Bateman and Bergin, 2010, p. 51).

Australia is actively engaged in maritime security cooperation efforts with several other countries in the region. A security cooperation agreement with Japan includes provisions for cooperation on regional and global antipiracy efforts and for exchanges between and exercises involving Australia Customs and the JCG (Ministry of Foreign Affairs of Japan, 2009a). Australia also has information-sharing and capacity-building relationships with Indonesia and the Philippines. The Royal Australian Navy even offered to share its air surveillance expertise by contributing to the Eyes in the Sky patrols over the Malaccan Strait (Rosenberg and Chung, 2008, p. 57).

Exercises under Australia’s major multilateral security agreement in the region, the Five-Power Defense Arrangements (with the United Kingdom, New Zealand, Singapore, and Malaysia) were expanded to include terrorism and piracy (Rosenberg and Chung, 2008, p. 57). Australia also participates in international antipiracy and counterterrorism operations, including multinational maritime patrols in the Persian Gulf and off the coast of Africa.

### ***Malaccan Littoral States***

The Malacca Strait is bordered by three states: Indonesia, Malaysia, and Singapore. The size and capabilities of the maritime security forces of these states vary considerably. Because of its heavy dependence on trade, Singapore has long sought to improve the safety of shipping, but only recently have both Indonesia and Malaysia begun to focus on maritime security (largely in an effort to address growing international piracy concerns and prevent an intervention that could impinge on state sovereignty). Both Malaysia and Indonesia have sought external support for training and equipment but remain resistant to opening their territorial waters to other countries’ operations. Confusing matters further, numerous agencies in each country are

involved with maritime security; for example, Indonesia has ten agencies, while Malaysia has seven (Liss, 2007).

#### *Indonesia*

Indonesia has 34,000 miles of coastline (Cole, 2008, p. 187), and while its naval force is sizable relative to those of its neighbors, it is not large enough to cover the area it needs to patrol and suffers from severe readiness problems. The scope of the readiness problem is illustrated by the fact that, in 2007, the Indonesian Navy consisted of 115 boats, but only 25 were operational at any given time (Liss, 2007, p. 7). Maintenance and logistic support are especially challenging because the equipment comes from a variety of international sources, such as Australia, the Netherlands, United Kingdom, France, Germany, Yugoslavia, Russia, South Korea, Japan, Singapore, and the United States (Cole, 2008, p. 187).

#### *Malaysia*

Like Indonesia, Malaysia has an extensive coastline to patrol. The Royal Malaysian Navy gained considerable experience in counterpiracy due to its proximity to the Malacca Strait. In June 2009, a Malaysian Navy ship deployed to the Gulf of Aden to participate in international counterpiracy efforts.

While its navy is Malaysia's primary maritime defense force, it established the Malaysian Maritime Enforcement Agency in 2005 to unite several previously disparate maritime security organizations and fulfill the role of a coast guard. The agency primarily focuses on law enforcement activities in the Malacca Strait, South China Sea, and Gulf of Thailand and is also in charge of the region's Maritime Rescue Coordinating Centre (Jane's, 2010).

#### *Singapore*

Among the Malaccan littoral states, Singapore has the best equipped and best trained forces. Singapore has long sought the support and cooperation of foreign countries in improving maritime security in the region. In 2009, to improve information sharing, the Singaporean Navy established the Information Fusion Centre (IFC), which hosts liaison officers from a number of other countries, including Australia and India (Bateman and Bergin, 2010, p. 38). The IFC is one of three entities located at the Changi Command and Control Centre; the other two entities are the Singapore Maritime Security Centre and the Multinational Operations and Exercises Centre. The Changi port facilities also host U.S. Navy vessels from time to time, including aircraft carriers.

The Royal Singapore Navy organizes the annual Maritime Information-Sharing Exercise (MARISX), a scenario-based exercise involving regional navies that was first held in 2009. Participating countries in 2009 included Australia, Canada, Chile, France, India, Indonesia, Italy, Japan, Korea, Malaysia, New Zealand, Singapore, Thailand, the United Kingdom, and the United States, along with a representative from ReCAAP (Singapore Ministry of Defense, 2009).

### **Other Key States**

#### *Philippines*

To improve maritime surveillance in the Sulu Sea, the Philippines is pursuing Coast Watch South (CWS), a string of 13 monitoring platforms that will provide a common operating pic-

ture of the maritime domain. An integrated data management system collects, synthesizes, and disseminates intelligence information to support interdiction and track trends for threat forecasts. CWS also includes rigid hull inflatable boats; small craft (similar to swift boats); and aircraft for surveillance, search, and interdiction operations. The system is intended to be an interagency effort involving the Philippine Navy, National Police, and Coast Guard and the departments of Immigration, Customs, and Environment. Currently, six of the sites are operational; the full project came online in September 2011. It is hoped that, over the long term, CWS will lay the foundation for an integrated regime of security in the Sulu Sea by linking it with similar systems in Indonesia and Malaysia. The system has received external funding for the first six radar platforms from the United States under the authority of Section 1206 of the National Defense Authorization Act for 2006. The project's future success will depend on Philippine government funding for the remaining monitoring locations and on reaching agreements with Indonesia and Malaysia (Information collected in interviews conducted by authors with U.S. and Filipino officials in Manila and Zamboanga, Philippines, January 2010).

The Philippine Navy is also in the process of developing a maritime group to enforce maritime law, and its Sea Marshal Program provides security for commercial vessels transiting the region. Despite these new initiatives, however, the navy still struggles to maintain its equipment, creating readiness issues that can negatively affect its operational tempo (Information collected in interviews conducted by author with U.S. and Filipino officials in Manila and Zamboanga, Philippines, January 2010).

#### *Pakistan*

Pakistan is emerging as an unlikely player in sea-lane security. This is largely due to its cooperation with China on a new port facility in Gwadar on the coast of the Indian Ocean. Although not traditionally a force in Asian maritime security issues, the country is now becoming an active participant in multilateral maritime security efforts, having contributed a frigate and helicopter to CTF-150 and commanded the operation twice. The Pakistan Navy has also contributed three ships to counterpiracy efforts under CTF-151.

### **Regional Security Mechanisms**

A decline in traditional state-to-state tensions, an increase in transnational threats since 2001, and growing sensitivity to energy sea-lane security have begun to overcome the historic regional resistance to multilateral security initiatives that is an artifact of the historic bilateral Asian-Pacific approach to security. Some of the initiatives were instigated by existing international or regional economic or security organizations. Additional new multinational groupings, with varying levels of formality and operational capabilities, have emerged to target narrower sets of issues. The result is a number of organizations with overlapping memberships and multiple, uncoordinated, maritime security efforts—a few of which have energy sea-lane security implications.

Multilateral arrangements in the region that touch on maritime security issues include

- Asia-Pacific Economic Cooperation (APEC)
- ASEAN
- Malacca Strait Patrol Network

- ReCAAP and the Information Sharing Centre (ISC)
- South Asia and Africa Regional Port Security Cooperative (SAARPSCO)
- Western Pacific Naval Symposium (WPNS)
- Indian Ocean Naval Symposium
- Horn of Africa Multinational Forces
- Proliferation Security Initiative (PSI).

Table 3.2 lists the Asian countries participating in each organization.

The sea-lane security efforts of the broad regional organizations, such as APEC and ASEAN, amount to little more than discussions and tabletop exercises. However, a few of the more narrowly focused mechanisms for cooperation, such as PSI and the Horn of Africa Multinational Forces, have had some successes. Because of their unique arrangements and demonstrated successes, the mechanisms of the Malacca Strait Patrol Network and ReCAAP, in particular, warrant further discussion.

Given the number and variety of existing multilateral forums, there is resistance in the region to the creation of new forums for specific interests, as China, India, Japan, the United States, and Australia learned when they attempted to establish interest-specific organizations from approximately 2001 to 2006.

### **Malacca Strait Patrol Network**

Singapore, Indonesia, and Malaysia formally established the Malacca Strait Patrol Network in April 2006 to bring together two previously separate initiatives to secure the Malacca Strait: the Eye in the Sky air patrols and the code-named MALSINDO naval patrols.<sup>4</sup> The network is supported by the Intelligence Exchange Group and a Joint Coordination Committee. Intelligence is shared via an information-sharing platform called the Malacca Strait Patrol (MSP) Information System. Thailand joined the patrols in 2008.

The MALSINDO naval patrols began in 2004 as a trilateral agreement between Singapore, Malaysia, and Indonesia to coordinate patrols of the Malacca Strait. The impetus was the growing international concern over piracy and the potential for terrorist attacks on shipping in the strait. To prevent an international intervention and the associated foreign military presence, the littoral states joined together to confront these concerns themselves. MALSINDO is notable for being the first operationalized multilateral maritime security effort in Southeast Asia not involving an extraregional partner (Bradford, 2005, p. 68). Its early successes included Indonesia's mobilization of two maritime patrol aircraft and four warships in December 2004 to recover a hijacked Singaporean tugboat (Bradford, 2005, p. 68).

The air component of the network, Eye in the Sky, began in 2006. This differs from the ship patrols in that it is both coordinated and combined, with each participating nation contributing maritime patrol aircraft for two sorties per week over the Malacca and Singapore straits and with flight personnel from each country manning air patrols (Storey, 2009b, p. 41). Some criticize Eye in the Sky, however, for its low number of flights and limited resources for responding to incidents it observes (Liss, 2007, p. 11). Nonetheless, Eye in the Sky and MALSINDO naval patrols have done much to alleviate localized Tier I (piracy and terrorism) concerns regarding energy sea-lanes.

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<sup>4</sup> The MALSINDO code name for the patrols is an acronym representing the names of the littoral states: Malaysia, Singapore, and Indonesia.

**Table 3.2**  
**Asia's Multilateral Maritime Security Mechanisms**

	ASEAN				Malacca Strait Patrol Network	ReCAAP	SAARPSO	Naval Symposia		Horn of Africa Multinational Forces <sup>a</sup>	SHADE	Proliferation Security Initiative
	APEC	Member	Plus 3	Regional Forum				Western Pacific	Indian Ocean			
Regional Powers												
United States	X			X				X		X	X	X
Australia	X			X				X	X	X	X	X
China	X		X	X		X		X			X	
India				X		X	X	Observer	X		X	
Japan	X		X	X		X		X		X	X	X
Republic of Korea	X		X	X		X		X		X	X	X
Malaccan Litorals												
Indonesia	X	X	X	X	X			X	X			
Malaysia	X	X	X	X	X			X	X			
Singapore	X	X	X	X	X	X		X	X	X	X	X
Thailand	X	X	X	X	X	X		X	X			
Other Asian Members												
Bangladesh						X	X	Observer	X			
Brunei Darussalam	X	X	X	X		X		X				X
Burma		X	X	X		X			X			
Cambodia		X	X	X		X		X				X
Democratic People's Republic of Korea				X								
Laos		X	X	X		X						

Table 3.2—Continued

	ASEAN				Malacca Strait Patrol Network	ReCAAP	SAARPSO	Naval Symposia		Horn of Africa Multinational Forces <sup>a</sup>	SHADE	Proliferation Security Initiative
	APEC	Member	Plus 3	Regional Forum				Western Pacific	Indian Ocean			
Maldives							X		X			
Mongolia				X								X
New Zealand	X			X				X		X		X
Pakistan				X			X			X	X	
Papua New Guinea	X			X				X				X
Philippines	X	X	X	X		X		X				X
Sri Lanka				X		X	X		X			X
Timor Leste				X								
Vietnam	X	X	X	X		X		X				
Membership Criteria	Geog.	Geog.	Geog.	Interest	Geography	Interest	Geography	Interest	Geog.	Interest	Interest	Interest

NOTE: The table does not include extraregional players that participate in these multilateral forums other than the United States.

<sup>a</sup> CTF-150 and CTF-151.

### **ReCAAP and the Information-Sharing Center**

Lauded a success by the IMO, ReCAAP is a multinational effort initiated by Japan that came into force in September 2006. ReCAAP has three components: information sharing between member states, capacity building and the sharing of best practices for combating piracy and armed robbery, and “cooperative arrangements with like-minded organizations to strengthen the ability of the member countries to manage incidents at sea” (Ho, 2009a, p. 432).

As part of ReCAAP, participating nations established ISC in Singapore in November 2006. ISC “is the first multilateral government-to-government antipiracy and armed robbery effort in the region” and is overseen by a governing council that arrives at decisions through consensus (Ho, 2009a, p. 432). ISC’s roles include exchanging information about incidents of piracy and armed robbery, analyzing patterns of piracy and armed robbery, facilitating operational cooperation between member states, and supporting the capacity-building efforts of the member states. Information-sharing activities include incidents that occur in both international and territorial waters (Sato, 2007). As of March 2010, ReCAAP had 15 members, and while Indonesia and Malaysia have not yet ratified the ReCAAP agreement, they are cooperating with ISC (Khalid, 2009, p. 436).

Among the reasons given for ReCAAP’s acknowledged success at multinational cooperation is its requirement that each member state designate a single national point of contact for ISC, which prompted increased interagency cooperation within member states. Another strength is ReCAAP’s inclusivity, which allows the accession of states outside the region and partnership agreements with other interested public and private organizations, such as IMO, the Asian Ship-Owners’ Forum, and the International Independent Tank Owners’ Organization (Ho, 2009a, p. 433).

ReCAAP’s current limitations include the fact that Indonesia and Malaysia failed to sign the agreement, which means information sharing is lacking on incidents occurring in their territorial waters. Another shortcoming is that ISC does not yet play an operational role that would allow it to directly cue responses from member states (Ho, 2009a, p. 433). Instead, ISC serves as a centralized database disseminating information to participating states and other interested parties. While not delivering bullet-proof energy sea-lane security in the region, ReCAAP holds promise as an emerging multilateral mechanism that could evolve and expand in its effectiveness.

### **Outlook for Multinational Cooperation**

Acknowledging the proliferation of multinational mechanisms indicates a willingness and desire for greater regional cooperation, Mohan Malik, a professor at the Asia-Pacific Center for Security Studies, also observes:

The multiplicity of organizations in the Asia-Pacific . . . points to a very dynamic but complex and diverse region with diverse needs and competing interests which cannot be easily subsumed under one pan-Asian organization. (Malik, 2009, p. 30)

Malik’s conclusion raises questions about the success of a single, broad-based maritime security organization.

Moreover, although these security organizations have been able to address some Tier I (nonstate) threats, their effectiveness against more robust Tier I and higher-order threats (Tiers II and III) remains doubtful.

## Current Energy Assurance Shortfalls

### Evidence of Energy Security Shortfalls

As the survey of national maritime security capabilities and regional security mechanisms illustrated, there have been considerable improvements, but clear holes remain in the region's existing maritime security regime. The degree of these shortfalls and their persistence is demonstrated by the fact that most regional actors still look to the United States as the cornerstone of sea-lane and regional security. These shortcomings contribute to energy insecurity in the region, which manifests itself in a number of ways.

First, the current Asian naval buildup is partially attributable to concerns about securing energy sea-lanes. Rear Admiral Zhang Huachen, deputy commander of the East Sea Fleet of the People's Liberation Army Navy, said:

With the expansion of the country's economic interests, the Navy wants to better protect the country's transportation routes and the safety of our major sea-lanes. . . . In order to achieve this, the Chinese Navy needs to develop along the lines of bigger vessels and with more comprehensive abilities. (Wong, 2010)

Similarly, the 2007 Indian maritime strategy included a prolonged discussion of energy security concerns. Admiral Suresh Mehta, then Chief of the Indian Navy, framed the problem this way in his introduction to the 2007 strategy:

Our strategy recognises that the sea lines of communication passing through our region are critical for our economic growth and to the global community. Smaller nations in our neighborhood as well as nations that depend on the waters of the Indian Ocean for their trade and energy supplies have come to expect that the Indian Navy will ensure a measure of stability and tranquility in the waters around our shores. Ensuring good order at sea is therefore a legitimate duty of the Indian Navy. This task will require enhanced capabilities, cooperation and interoperability with regional and extra regional navies. (Mehta, 2007, p. iv)<sup>5</sup>

Other Asian countries are investing in their own naval capabilities; for example, Vietnam, Malaysia, and Singapore have all recently acquired submarines (Wong, 2010). This naval modernization effort includes pursuing overseas facilities to support blue-water naval capabilities:

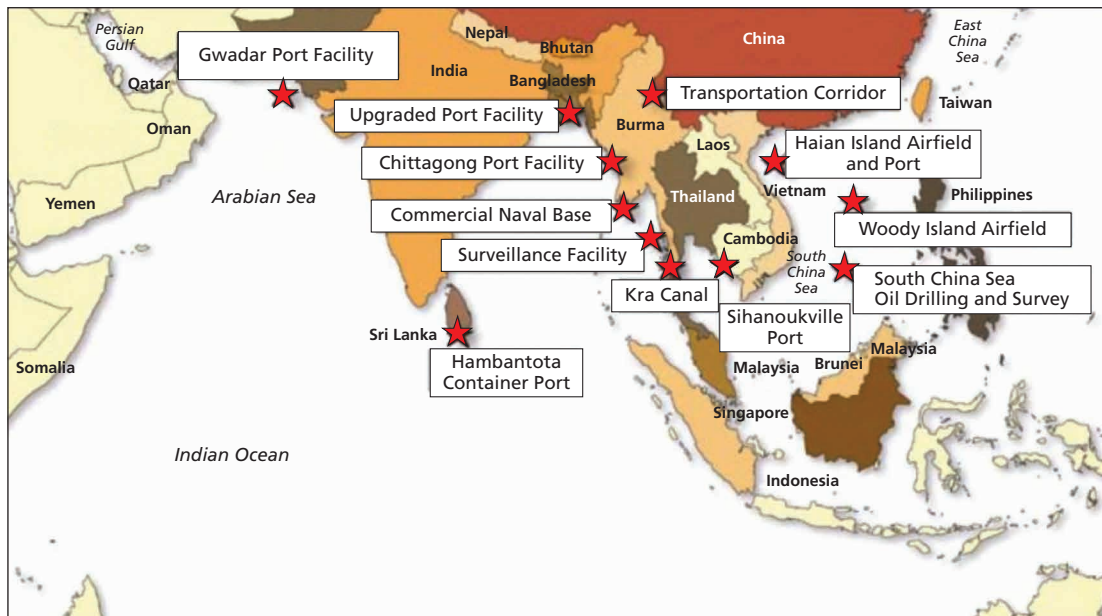
According to some reports, the Chinese government has adopted a so-called "string of pearls" strategy for the Indian Ocean, which reportedly consists of setting up a series of principally civilian ports in friendly countries along the ocean's northern seaboard. (Kaplan, 2010a, p. 183)

Such a series of bases would facilitate operations further from China's shores to monitor and respond to threats along its sea-lanes. (See Figure 3.1.)

A second indicator of perceived energy sea-lane insecurity is the development of alternative energy distribution systems in the region in the form of pipelines. China expects to double its oil and gas pipelines to almost 90,000 km from 2011 through 2015 (Erickson and Collins, 2010, p. 90). One of the most critical stretches of pipeline will be in Burma. In March 2009,

<sup>5</sup> Also see Integrated Headquarters Ministry of Defence, 2007, Ch. 4.

**Figure 3.1**  
**China's String of Pearls**



SOURCE: Adapted from U.S. Naval Institute, 2009.

NOTE: "String of Pearls" is a U.S., not a Chinese, term describing the increasing Chinese presence in the region.

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China signed an agreement to build 2,000 km of oil and gas pipelines by 2013, which will run from the Burma coastline to Yunnan province. This pipeline will cost an estimated \$2.5 billion, to be paid entirely by China (Pakiam, 2010). The pipeline would provide an oil channel into China that does not require passing through the Malacca Strait. Andrew Erickson and Gabriel Collins refer to the intensity of China's pursuit of overland oil routes as a "barometer of Chinese trust in global oil markets and maritime oil transport security" (2010, p. 107) and an attempt to partially address its sea-lane security vulnerability.<sup>6</sup>

Other indicators of the country's perception of energy sea-lane insecurity include an increase in the number of tankers owned by Chinese shipping companies, rising maritime insurance rates, and the growing number of high-value vessels carrying personnel from private security. Placing tankers under the Chinese flag is seen as having the advantage of deterring future adversaries from interdicting China-bound tankers, as "state flagging of tankers can be a legal prerequisite for military protection and raises the stakes for a potential blockader" (Collins et al., 2008, p. 83).

The insurance industry's escalation of maritime insurance rates and expansion of areas it deems war-risk zones are market-based indications of maritime insecurity. Some estimate that the growth of piracy in the Gulf of Aden increased the cost of insuring a container from \$900 in 2007 to \$9,000 by the end of 2008 (King, 2008, p. 1). Another consequence of increased

<sup>6</sup> For its part, India has periodically expressed interest in pipelines from Central Asia or Iran to provide overland energy access. The Turkmenistan-Afghanistan-Pakistan-India and Iran-Pakistan-India pipelines have, however, had great difficulty gaining commercial viability because of the long distances involved, insecurity in Afghanistan and Pakistan, and tensions between Pakistan and India.

levels of piracy was Lloyds of London's designation of the Gulf of Aden as a war risk zone subject to increased insurance premiums (King, 2008, p. 3).

The growth of private security operations at sea is yet another indicator of anxiety. The services these companies offer include attack prevention and response during and after crises, attacks, or incidents. Opinions in the shipping industry and international community are divided on the appropriateness of employing private security guards on vessels (charging rates of approximately \$20,000 per day). At a recent panel, senior officers from both the U.S. Navy and the U.S. Coast Guard advocated their use, citing the fact that no ship with an armed security team onboard has been successfully hijacked ("Partners Against Piracy," 2010).

### **Current Security Structure Mechanism Seams and Gaps**

As the previous discussion indicates, the region has clear insecurities about the safety of its sea-lanes. Gaps in its current maritime security apparatus cross three functional areas: surveillance and information sharing, response time and capabilities, and interoperability.

#### *Surveillance and Information Sharing*

It is difficult to anticipate security incidents through observation and prediction because of the vastness of the area, and the ability to do so is severely limited by a lack of intelligence and information sharing between partners in the region.

Despite improvements, including offshore radars and the implementation of AIS and the Long Range Identification and Tracking program, true maritime domain awareness remains a vision, not a reality. Observation also suffers because of the lack of a common operating picture. Even as international maritime data exchange becomes more common, it is unclear how to integrate information from various regional surveillance centers most effectively. Furthermore, operational security concerns may constrain the amount of information each country is willing to share with others, both bilaterally and multilaterally. Even if these surveillance challenges were resolved, it would still be necessary to link improved situational awareness to viable response mechanisms (International Institute for Strategic Studies, 2006, p. 49). Issues of sovereignty; international law; intelligence, surveillance, and reconnaissance (ISR) reporting latency; response force readiness; transit time; and on-station capability all complicate developing energy sea-lane capabilities available to be used in rapidly evolving emergency situations.

#### *Response Time and Capabilities*

Timely responses to security incidents at sea are challenged by reporting delays, the vast distances that must be traveled to reach a ship in distress, the speed constraints of the large naval vessels that are the primary responders, and the limited number of forces with the requisite skills to regain control of a ship. The response challenge will become even greater if piracy and other threats move further out to sea and away from concentrated security forces.

The response function includes on-site actions that constitute specialized sets of skills. One example set is visit, board, search, and seizure. Because of the limits of visual observation, it is often necessary to board a vessel to determine its intent. Visit, board, search, and seizure skills are also necessary for taking down or otherwise regaining control of a ship, and they are particularly important for a ship hijacked by heavily armed forces or when hostages have been taken. However, not all countries train their service members in these skills, which increases the dangers associated with responding and leads to delays if a specialized team must be called in from farther away.

### *Interoperability*

For multiple countries to work together successfully to maintain the freedom of the seas, interoperability is critical. In particular, interoperable command, control, and communications systems would allow for better coordination of patrols and incident response.

## **Conclusion**

While the likelihood of a major disruption to energy supplies being transported through the sea-lanes of the Indian Ocean and Asia remains low, awareness that such a disruption would have a dramatic effect on the region contributes to uneasiness about the security of the supplies. Additionally, the paucity of air forces and “airmindedness” in approaching the regional sea-lane security challenge is evident.<sup>7</sup> The United States could improve its own ability to provide security by approaching the challenges jointly, but overall sea-lane security would benefit even more from leveraging the combined synergies of its regional partners as well.

The next chapter will explore possible alternatives to the current approach to sea-lane security to address the security shortfalls and accompanying behaviors that have been identified here.

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<sup>7</sup> General “Hap” Arnold termed the airman’s “particular expertise and . . . distinctive point of view . . . ‘airmindedness.’” In the case of energy sea-lane security, it is the particular lens through which airmen perceive the mission and view the multidimensional operational space (surface, air, space, cyber).



## Alternative Approaches to Sea-Lane Security

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The previous chapter highlighted the range of state and nonstate threats to the energy sea-lanes and noted the limitations of existing state and multinational efforts in combating these threats. These limitations and the heightened anxiety in the region about sea-lane security invite consideration of alternatives to the current U.S. Navy approach. Ensuring access to sea-lanes in the Indian Ocean and Asia continues to be a principal interest of the United States; we assumed the United States would remain actively involved in regional maritime security for the foreseeable future. Based on this continued U.S. engagement, we explored two alternatives: (1) bringing a more joint U.S. capability to bear and (2) working with other key actors in the region to address the problem multilaterally. Adopting a more joint and multinational approach to sea-lanes security may not only improve sea-lane security but also positively affect regional security broadly.

### The Need for a New Approach

As the shortfalls in Asian sea-lane security indicate, the traditional thinking on ensuring that security no longer seems adequate. These shortfalls have several causes. First is the increasing dependence on these sea-lanes as supply lines. Because they facilitate delivery of the resources necessary to fuel continued economic growth, they are far more important than the existing security regime would suggest. Second, the region now includes two emerging great powers that played limited roles in regional security only a few decades ago, in the late 1900s, but today compete for much of the same geopolitical space. Their economic and security interests now take them further from their shores, but the same interests appear to push them up against status quo powers in the region and, simultaneously, cause concern among smaller countries with fewer resources. Third, the risks to the maritime commons in the absence of governance are now greater than they were even in the year 2000. Threats include not only the security pinpricks of piracy (Tier I) but also the potent concerns of terrorism and even state-sponsored sea-lane disruption (Tiers I, II, and III). Fourth, while international relations in Asia have previously been bilateral, the region is increasingly experimenting with multilateral cooperation, raising the possibility of collective security solutions. Fifth, the U.S. Navy, the long-time guarantor of freedom of the seas, has a shrinking fleet but at the same time faces an increasing array of missions and an expanding area of operations, raising concerns in Asia about the fleet's continued presence.

In considering the evolving state of the maritime commons and what the U.S. approach to it ought to be, Robert Kaplan put it succinctly: "The goal of the United States must be to

forge a global maritime system that can minimize the risk of interstate conflict while lessening the burden of policing for the U.S. Navy” (Kaplan, 2010, p. 185). Two potential means of accomplishing this goal are developing U.S. capabilities and multinational partners.

### **Benefits of an Approach That Is Both Joint and Integrated**

The United States can evolve its own capabilities in this security area through a two-pronged initiative. The first prong would bring joint military capabilities to bear on the problem, and the second would leverage integrated (whole-of-government) capabilities.

Increasing the joint nature of DoD’s response would allow other services, such as the U.S. Air Force and Coast Guard, to complement and perhaps augment U.S. Navy assets. The U.S. Air Force, for example, could supplement naval aviation capabilities with space-based, lighter-than-air, or land-based observation platforms that offer better coverage, persistence, flexibility, versatility, and/or decreasing response time and cost.

One of the greatest benefits of a joint approach may be relieving some of the mission stress on the U.S. Navy. Since 1990, the U.S. Navy’s ship complement fell to one-half its Cold War size, with just 287 active ships (Naval Historical Center, undated, p. 1). While the U.S. Navy has a target force of 313 ships (Director, Warfare Integration, 2010, p. 2), it is unclear whether the service can realistically meet this goal, given budget constraints and rising shipbuilding costs. The Congressional Budget Office estimates that fulfilling the Navy’s 30-year shipbuilding plan would require spending an average of \$19 billion annually. This is well above the \$15 billion in average annual shipbuilding funding the Navy has received over the last 30 years (Labs, 2010b, pp. VII–VIII). Shortly before becoming the Under Secretary of the Navy, Robert Work warned that “the signs are that the Navy’s plans are far too ambitious given likely future resource allocations” (Wood, 2010). Even if the U.S. Navy receives sufficient funding to implement its 2011 plan, it would not reach its 313 ship goal until 2020 and would stay at that level only until 2027, when the fleet would again begin to shrink, as ships are retired faster than they can be replaced (Labs, 2010b, p. 2).

Although, as of 2012, U.S. Navy ships are among the most capable ever sailed, the decline in their numbers makes it difficult to cover as much global sea space at one time as in the past. Additionally, there are increasing demands on where the U.S. Navy may have to operate in the near future, such as the Arctic where the summer ice melt is expected to open new sea-lanes and attract commercial interests (Task Force Climate Change—Oceanographer of the Navy, 2009). A March 2010 CNA report observed an “increasing gap between demand signal for naval responses and resources available to fulfill mission sets” and found that the U.S. Navy’s current strategies, which are “based on combat-credible forward presence,” are unsustainable (Whiteneck et al., 2010, pp. 3–4).

Next, an integrated approach to sea-lane security would involve not only the military but also other relevant elements of the U.S. government (such as the Coast Guard, DOS, National Security Council, and Intelligence Community). Such an approach is valuable in that it enhances capabilities while spreading the burden across the government, rather than placing it solely on the U.S. Navy or even the military as a whole. This approach is also holistic and could enhance engagement with regional partners through relatively seamless interagency involvement.

A second advantage is that such an approach would allow the United States to counter threats more comprehensively, addressing not only the military but also the political and economic aspects of the problem. Civilian organizations may be better positioned to address the diplomatic, legal, and economic dimensions of the potential threats.

A third benefit is that this approach could allow engagement with regional partners on a variety of levels, rather than just between U.S. and partner navies. This can be especially helpful when military-to-military relations are strained or not politically feasible. For example, recent tensions between the U.S. and Chinese militaries limited cooperation between them, yet relations between the respective political and economic leaders continue (Whitlock, 2010).

While an approach that is both joint and integrated can address the growing stresses on the U.S. Navy and will be better able to deal with the multifaceted threats to energy sea-lanes, it is ultimately the involvement of other countries in the region that will be crucial.

## **Benefits of a Multinational Approach**

As part of the global commons, “the maintenance of maritime order ultimately relies on joint interstate agreement and enforcement” (Chalk, Smallman, and Burger, 2009, p. 4). Traditionally, U.S. security relationships in Asia have been bilateral, often characterized as the “hub and spoke” pattern (Bisley, 2009, p. 68). However, the growth of multinational security mechanisms in the region allows the United States to update this approach. The National Security Strategy of 2010 calls for greater U.S. investment in regional capabilities, observing that “regional organizations can be particularly effective at mobilizing and legitimating cooperation among countries closest to the problem” (The White House, 2010, p. 46). Such multinational cooperation could become even more important as regional powers, such as China and India, become more active in regional leadership.

First, a multinational approach would allow the United States to share the burden of maintaining access to the maritime commons with the other states that also benefit from its use, while at the same time enhancing the capacity of partner states. The necessity of working with, and through, partners has already been recognized by the naval services in their 2007 maritime strategy (U.S. Department of the Navy, 2007) and introduced through such concepts as the Global Maritime Partnership (also referred to as the “Thousand Ship Navy”). DoD, 2010, p. xiv, calls for “strengthening key relationships abroad” through “tailored approaches that build on shared interests and common approaches” and specifically for improving the capacity of other states to solve such security problems as “maintaining access to the global commons.” Protecting the energy sea-lanes, an interest common to nearly all nations in the region, offers an opportunity to jointly operationalize these concepts.

Another advantage is that, through coordination, this approach can improve the efficiency and effectiveness of individual national efforts. For example, efficiencies can result from harmonizing the security training and equipment contributions made to littoral states, thereby “avoiding redundancy and deterring the recipient states from playing one donor against another and steering the aid away from the common good of strait security toward the recipients own priorities” (Sato, 2007). Another example is the MSP network’s initial success in improving utilization of the limited resources of the littoral states by coordinating patrols. After the introduction of the first component of the MSP network, incidents of piracy and armed robbery fell from 187 in 2003 to just 15 in 2009 (Storey, 2009b, p. 41; Nincic, 2002).

An especially important aspect of the multinational approach, going well beyond sea-lane security, is that it is better able to accommodate new regional powers in the region and to improve regional stability through confidence building. Joint security operations build trust among the parties involved, and creating these regular interactions is a crucial part of avoiding miscalculation. The national security advisor of India, Shiv Shankar Menon, identified sea-lane security as a possible starting point for collective security efforts in the region, noting that the convergence of interests on the issue lends itself to a collaborative approach (Menon, 2009, p. 6). The “maritime concert” Menon proposed would “provide a way to manage the maritime friction points where the major powers’ interest increasingly overlap, such as the Indian Ocean trade routes” (Bisley, 2009, p. 111). Cooperation on smaller issues can lower the threshold for cooperation on larger, more contentious ones.

Finally, and perhaps most significantly, militaries with a history of operating side by side in common cause are less likely to miscalculate when confronting one another.

## Conclusion

There are clear benefits to joint, integrated, and multinational approaches to sea-lane security. However, we have not yet explored the feasibility of implementing these new solutions. The next chapter identifies the hurdles that are likely to be encountered in pursuing this new approach.

## Hurdles to Overcome

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In developing a new approach to securing Asian sea-lanes, it is not the technical or operational, but rather the cultural and political, hurdles that are the most challenging to overcome. Barriers to cooperation need to be addressed both within the U.S. bureaucratic structure and among current and potential regional partners.

### Joint Issues

#### Evolution of Cooperation Between the U.S. Air Force and the U.S. Navy

Cooperation and competition between America's Air Force and Navy began in the U.S. Air Force's earliest days, when it was known as the Army Air Corps.

In the aftermath of World War I, the services clashed over the utility of air power against dreadnoughts, a debate that would have a direct bearing on the future allocation of resources. BG Billy Mitchell prompted this tension, which peaked in the summer of 1921, when the Army Air Corps bombed and sank captured German battleships during the Army-Navy exercise known as "Project B" (Correll, 2008, p. 64).

Later, during World War II, the separate command structures for the U.S. Navy and U.S. Army Air Forces led to continued competition for resources, differing strategic approaches, and the eventual establishment of a separate air force following the war. With the dawn of nuclear weapons, the different operational constructs of the two services manifested themselves specifically in the bureaucratic rivalry between the U.S. Air Force's B-36 and the U.S. Navy's proposed USS *America* (CVA-58). During a period of postwar defense austerity, these two acquisition programs presented the Truman administration with a zero-sum dilemma. When the U.S. Navy's supercarrier was declared the loser, its demise was accompanied by the historic "revolt of the admirals" and the resignation of the Secretary of the Navy, the Chief of Naval Operations (CNO), and senior naval officers (Ford, 1996).

A decade later, when Secretary of Defense Robert McNamara introduced systems analysis and the resulting common experimental tactical fighter airframe (known as the TFX at the time), the U.S. Navy revolted again. This time, however, the strategy with Congress was more successful, allowing the service to break ranks and acquire its own variable swept-wing F-14 fighter. Similarly, in the 1970s, the U.S. Navy again rejected the U.S. Air Force's lightweight fighter concept (which eventually resulted in the F-16) and opted instead for a separate Navy Air Combat Fighter program (eventually selecting the loser of the lightweight fighter competition between what would become the F-16 and the F-18) (Baugher, 2001).

Fortunately, since the Reagan era, the relationship has tended to be more cooperative. In 1982, the CNO and the Air Force Chief of Staff signed a memorandum of understanding for joint maritime operations (U.S. Department of the Navy and U.S. Department of the Air Force, 1982). This agreement responded to potential contingencies against a conventional Soviet force and acknowledged the utility of using combined forces to defend the sea-lanes. At the time, the Air Force was expecting to use B-52s and modified E-3A Airborne Warning and Control Systems to perform this mission (Chipman and Lay, 1986). In 1990–1991, during ODS, the Navy grew to appreciate the value of the Joint Theater Air Control System and the joint air commander’s centralized control of joint air assets through the air tasking order. Later in the 1990s, both services committed themselves to the development of the Joint Strike Fighter.

In the ongoing U.S. conflicts against low-end asymmetric adversaries since 2001, the Navy and Air Force have supported the land component commander, while carrying primary responsibility for dissuading, deterring, and (if necessary) defeating the near-peer and/or high-end asymmetric threats in other parts of the world.

### **Recent Cooperative Advances**

The much anticipated AirSea Battle Plan is intended to move beyond this checkered history and bring about greater, more enduring U.S. Air Force–U.S. Navy cooperation and tighter integration of its effects. A September 2009 joint memorandum from the Air Force Chief of Staff and the CNO launched a study to understand where Air Force and Navy capabilities could be combined for greater effectiveness (Cavas and Muradian, 2009). This effort is described in greater detail in DoD, 2010, p. 32:

The Air Force and Navy together are developing a new joint air-sea battle concept for defeating adversaries across the range of military operations, including adversaries equipped with sophisticated anti-access and area denial capabilities. The concept will address how air and naval forces will integrate capabilities across all operational domains—air, sea, land, space, and cyberspace—to counter growing challenges to U.S. freedom of action. As it matures, the concept will also help guide the development of future capabilities needed for effective power projection operations.

Protection of the sea-lanes and management of sea space may offer a high-potential opportunity to experiment with the elements of the new operational plan in a peacetime environment.

### **Remaining Joint Tensions**

Implementing a joint approach, such as the one to be outlined in the AirSea Battle Plan, will require addressing two key issues: lack of full-spectrum interoperability and resistance to interdependence. For genuinely effective joint operations, interoperability will need to be achieved both in terms of more common hardware and procedures. According to some, “The Air Force and Navy suffer from a self-inflicted connectivity wound,” acquiring and operating weapons and communication systems that are often not compatible (Van Tol et al., 2010, p. 35). His-

torically, the two services have also each developed their own procedures for missions and tasks (Van Tol et al., 2010, p. 113), as shown during ODS and by the U.S. Navy's difficulty adjusting to the air tasking order construct. Such practices produce a more challenging joint operating environment and can lead to the stovepiping of intelligence, information, and data flow among and even within services (Van Tol et al., 2010, p. 35).

While the principle of interoperability has become widely accepted in recent years, continuing resistance to interdependency on the part of both services raises a second hurdle to achieving efficiency and effectiveness gains from combined sea-lane protection operations. To truly benefit from interdependency, the services need to better define their missions and desired capabilities and determine where each can best leverage the core competency of the other, thereby freeing resources for its own missions and unique capabilities.

In addition to breaking down barriers to joint operations between the U.S. Air Force and U.S. Navy, a new approach to sea-lane security should build on a climate for increased cooperation and coordination between DoD and DOS. Building partnership capacity in the region will be a key element of a more collaborative approach. One way to achieve this is through security assistance programs, which include both training and equipping efforts. Under its Section 1206 authority, DoD provided \$190.3 million in assistance to Indonesia, Malaysia, the Philippines, Sri Lanka, and Bangladesh from fiscal years (FYs) 2006 through 2009, nearly all of which went toward maritime security (Serafino, 2010, pp. 23–25). Whether or not DoD continues to be responsible for this funding, the effort would benefit from the involvement of country and regional experts from DOS, who may also help to facilitate efforts in country.

## **Multinational Issues**

The multinational hurdles are largely political and include (1) differing interests within the region, (2) differing threat perceptions, (3) concerns over state sovereignty, (4) negative attitudes toward externally led initiatives, and (5) differing levels of capability among contributing nations.

### **Differing Interests**

Different countries in the region hold differing interests among countries, presenting a historical impediment to collective action. Moreover, the major powers involved have different long-term strategic visions for the region. Even among supposed allies, major disagreements remain, such as the ongoing maritime territorial disputes between ASEAN members.

### **Threat Perceptions and Priorities**

The countries also differ in how they perceive threats and in how they set priorities for maritime security among international user states and the coastal states. User states focus on threats to shipping, such as piracy and terrorism, while coastal states focus on such local issues as overfishing and protecting maritime territorial rights and claims (Rosenberg and Chung, 2008). This divergence in priorities and perceptions is perhaps most evident in the Malacca Strait, where observers have expressed concerns that, as the number of attacks and accompanying international pressure decline, the littoral states might reduce their patrols (Storey, 2009b, p. 44). Ian Storey notes:

Indonesia is particularly at risk of “patrol fatigue” both because it does not see piracy as a major threat (compared with illegal fishing and smuggling), and because the patrols consume a high proportion of limited resources, particularly ships, fuel and manpower. (Storey, 2009b, pp. 44–45)

### **Sovereignty**

Sensitivities about state sovereignty affect both where a multinational effort might operate and how these operations would be conducted (i.e., chain of command). These concerns, particularly on the question of whether law enforcement agencies from neighboring countries should be allowed to operate in national waters (as in the instance of hot pursuit), prevent greater cooperation on maritime security (Liss, 2007, p. 11). The MSP network demonstrates the limits these concerns place on collective security efforts. In this arrangement, naval patrols are coordinated, rather than truly joint, operations (Storey, 2009b, p. 41). Indonesia and Malaysia also cited sovereignty concerns in refusing to join ReCAAP and continuing to oppose foreign patrols in Southeast Asian waters (Storey, 2009b, pp. 41 and 43).

### **Suspicion of External Initiatives**

Countries in the region also tend to be suspicious toward initiatives led by outsiders. While this is not an issue with traditional U.S. allies in the region, newer partners and others remain wary of efforts of outside powers that might encroach on individual sovereignty or compete with the ambitions of individual countries. The Regional Maritime Security Initiative (RMSI), which the United States proposed in 2004, is a pointed example of how an externally led effort could fail. In 2004, U.S. Pacific Command launched RMSI to address transnational maritime security threats by increasing cooperation between the United States and countries in Southeast Asia. The initiative quickly failed to get the support of Malaysia and Indonesia, who “condemned the proposal as a violation of their sovereignty and warned that the presence of U.S. forces in the Strait [of Malacca] would only fuel Islamic radicalism in Southeast Asia” (Storey, 2009b, p. 40). The United States ultimately dropped the program name, and Indonesia instead pursued trilateral coordinated naval patrols with the other front-line states via the MSP network.

### **Capability Levels**

The final major challenge stems from the differing levels of capability of the various contributing nations. The disparities will make it difficult to achieve the sort of equal partnership that a solution dictated by sovereignty concerns might demand.

### **Individual Country Concerns and Preferences**

In addition to the broader hurdles that will need to be addressed in any multinational approach to sea-lane security, the countries likely to be involved in such an effort in the Indian Ocean and East Asia each has its own set of goals, concerns, preferences and regional security perspectives that need to be taken into consideration. These country-specific issues tend to cluster around shared regional aspirations held by three main groups.

## Stability-Focused Powers: United States, Japan, and Australia

The United States, Japan, and Australia are all interested in building an effective cooperative security framework for the region to avoid major conflict, ensure access to sea-lanes, and maintain a level of influence in region. While each country in this grouping favors a slightly different approach to accomplishing these objectives because of its own domestic constraints and strategic concerns about how other players in the region will perceive it, each approach is broadly compatible with the others.

Given the downward pressure on U.S. defense budgets and the military's commitments elsewhere around the globe, the United States will likely want to avoid significant additional expenditures for any new approach. At the same time, however, the nation needs to reassure its regional allies of its continued commitment, especially given the years of emphasis on Iraq and Afghanistan.

Australia is a longtime U.S. ally and actively supports maritime security efforts. At a strategic level, however, it fears being squeezed between China, a major trade partner, and the United States, a key strategic ally (Gordon, 2010, p. 27). Australia is also concerned that strong military ties with India, particularly in concert with Japan or the United States, could trigger counterproductive reactions from China. Indicative of this cautious stance is Australia's pullback in 2011 from combined naval exercises with the United States, Japan, and India "for fear of feeding the notion that there is a China containment strategy" (Bateman and Bergin, 2010, p. 34).

Japan has sought a multilateral approach to maritime security for some time. It has advocated for a multinational regime with strong enforcement capabilities, not only to address piracy but also to "provide comprehensive maritime security in both international and national waters" (Bradford, 2004, p. 489). Japan is helping its neighbors develop their security capabilities by offering training and contributing equipment. What Japan is able to accomplish on its own, however, is constrained by constitutional limits on its armed forces and lingering sensitivities within the region over Japan's history. Multilateral participation might both make deployment of Japan's navy more politically acceptable internally (Bradford, 2004, p. 489) and address lingering anti-Japanese biases. As noted previously, Japan already adroitly uses its quite capable coast guard to enhance its engagement with other Asian states.

## Rising Powers: China and India

As rising powers within the region, both China and India are maneuvering for influence and remain wary of one another's hegemonic aspirations or political-military gains. Their strategic calculus in evaluating collective approaches to security is as concerned with maneuvering to keep the other power "out" as it is with improving the security of their own energy sea-lanes.

Given its arguments against other multilateral security initiatives in the maritime space, China will likely raise concerns over the legal basis for any future arrangement, including whether it has formal UN approval. Despite acting as an independent observer of antipiracy activities off the coast of Somalia, China does not directly support CTF-150.<sup>1</sup> Chinese objections to the task force include the fact that the operation does not require the consent of the

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<sup>1</sup> CTF-150 is a multinational naval task force based in Bahrain.

coastal states, lacks UN involvement, and has a U.S.-influenced command structure (Dutton, 2009, pp. 18–19). Likewise, China refuses to join PSI over concerns about the legality and legitimacy of interdiction operations, fearing that they could one day infringe on the right of passage of Chinese ships (Wolf, Chow, and Jones, 2008, pp. 20–21).

China will also be wary of any initiative that appears to be U.S. inspired or even supportive of America's continued leadership in the region. It is already uneasy with the level of cooperation between the United States and Singapore and suspects that the United States is strengthening its own strategic position in the region under the guise of combating terrorism (Collins et al., 2008, p. 310).

India is concerned about preserving its autonomy and its freedom of action, the latter a broader security sensitivity linking back to its colonial experience. Since the beginning of the 1990s, India has become more comfortable cooperating with the United States but continues to be concerned about the presence of other major powers, particularly China, in the Indian Ocean region (Bateman and Bergin, 2010, p. 19). India is focused on reversing growing Chinese domination of Asia and, more specifically, on limiting Chinese influence and operations in the Indian Ocean. India may therefore be wary of a regional security consortium approach if it appears to increase or provide a pretext for Chinese involvement in the Indian Ocean. India's long-time rivalry with Pakistan could also complicate cooperative efforts, because the Indian Navy may not be willing to participate in information sharing if that could reveal the locations of its vessels to Pakistan.

India also has a long-standing preference for UN approval of coalition forays. In considering India's response to past multilateral maritime security efforts, such as PSI, the "Thousand Ship Navy," the International Ship and Port Security Code, and the Container Security Initiative, Vijay Sakhuja (2010) observed that, "In essence, India supports multilateral initiatives that have been sanctioned by the UN and remains averse to any U.S. proposed initiatives."

## States on the Front Line: Indonesia, Malaysia, and Thailand

The Malaccan littoral states and Thailand share the challenge of harmonizing their own sovereignty concerns and limited maritime security capabilities with a demand for greater security from user states. Indonesia, Malaysia, and Thailand are also similar in that they have competing domestic security issues demanding their attention, oftentimes leaving them with differing security priorities than those of the strait's user states.<sup>2</sup>

The coastal states "have always reiterated that responsibility for securing the strait is theirs alone," making them suspicious of international efforts that might impinge on that sovereignty (Khalid, 2009, p. 426). Moreover, Indonesia believes its sovereign rights in the Malacca Strait are crucial to its territorial integrity and national defense (Khalid, 2009, p. 425). In Indonesia, even cooperative efforts, such as joint exercises, are viewed cautiously for fear that they could lead to sovereignty violation (Bradford, 2004, p. 498). Additionally, Indonesia is particularly resistant to externally led security efforts because of domestic political sensitivities over cooperating with the West (Sato, 2007). Further restraints on Indonesia's involvement in multilateral

<sup>2</sup> We excluded Singapore from this discussion because it supports the adoption and implementation of new approaches. Singapore has long advocated for greater international support and favors working through multilateral channels, aligning it more closely with the stability-focused powers than the other front-line states.

security initiatives include a defense policy that requires voluntary participation (Sato, 2007) and competing security concerns over terrorism, separatism, poverty, and disaster relief (Bradford, 2004, p. 497; Rosenberg and Chung, 2008, p. 56).

Malaysia shares Indonesia's concerns and will also be reluctant to join any initiative it perceives as competing with the IMB Piracy Reporting Center it hosts in Kuala Lumpur. This is believed to be one of the reasons Malaysia has not joined ReCAAP (Khalid, 2009, p. 446).

For Thailand, it will be difficult to support a new approach because of the weakness of its own security forces and because of competing internal political and security demands. Thailand's complex jurisdictional boundaries and a lack of intragovernmental coordination have been significant barriers to cooperation with other countries on maritime security efforts in the past (Sato, 2007).

## **Conclusion**

While gaining support for and implementing a new approach to sea-lane security in Asia will be challenging, these hurdles are not insurmountable. The structure of a new approach could take the preferences of partners in the region into account and thereby work around the hurdles described above. The next chapter will explore how a new approach might be implemented and identify some potential next steps for the U.S. Air Force.



## How to Put Something in Place: Pursuing a Modified Approach

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Ensuring access to the sea-lanes is increasingly important in the Indian Ocean and the Asia-Pacific region because of a growing reliance on imported energy. A joint, multinational approach would benefit not only energy security but also regional security as a whole. However, implementing such an approach will be challenging because of continuing interservice and interagency tensions in the United States and the differing interests and political sensitivities of key states in the region. With these hurdles in mind, this chapter describes the qualities a new approach should possess to be successful. It also identifies some possible next steps for the United States, and the U.S. Air Force in particular, to begin implementing a more joint and multinational sea-lane security strategy.

### Solution Attributes

Given the lessons of previous multinational security efforts in Asia and taking into account the barriers to cooperation identified in Chapter Four, we identified a number of qualities that will improve the chances of a new approach achieving its objectives. It should be

- built on existing cooperation mechanisms
- flexible
- sensitive to sovereignty
- focused on operationalizing ideas and commitments
- economically affordable
- a true partnership.

The importance of each of these attributes is explored further below.

### Employing Existing Security Cooperation Mechanisms

We found evolving existing regional security mechanisms to be more desirable for a successful approach than establishing entirely new organizations. The numerous, uncoordinated regional security institutions that have proliferated since the 1990s have already resulted in replication and redundancy. This has been cited as one of the reasons that these institutions have had little influence on state policies (Bisley, 2009, p. 13). Working through established organizations will avoid further duplication and dilution of effectiveness. Furthermore, regional states distrust new organizations for fear of hidden and threatening agendas and are concerned “that

improperly crafted entities may spiral out of control and infringe upon state sovereignty and resources” (Bradford, 2005, p. 81). These concerns emphasize the need to work through existing organizations and mechanisms to navigate a more likely path to success.

## **Flexibility**

Accommodating the varying capabilities of participants, the constraints under which they operate, and differing interpretations of international law will require flexibility. This means crafting a solution that will still allow less-capable states to participate in sea-lane security and recognizing not all states will be able to make identical contributions. Similarly, a new approach should initially avoid placing stringent and inflexible requirements for responses to specific situations because this would raise the bar too high for some states. Some operational engagements may not be possible under idiosyncratic domestic laws or in the context of internal politics of individual regional partners.

An approach that can accommodate differing interpretations of international law is also desirable; long-standing legal debates (such as the one over the right of a state to determine who may transit its 200-nmi exclusive economic zone) are unlikely to be resolved in the near future. A solution that avoids these areas of contention and refers questions of legal interpretation to the appropriate international body could operate similar to UN Convention on the Law of the Sea mechanisms. This would allow cooperation on the narrower issue of energy sea-lane security to move forward without being derailed by broader legal matters.

## **Sensitivity to Sovereignty**

The still fresh memories of colonialism make many states in the region highly sensitive to any perceived or potential loss of sovereignty. Any multinational approach that hopes to gain wide regional participation needs to be respectful of, and sensitive to, these concerns. This means that cooperation may be limited in such areas as joint command structures and hot pursuit until states in the region become more comfortable working together—or until the threat level rises sufficiently to override historic sovereignty concerns.

## **Operationalizing Ideas**

For any new security approach to be effective, it should go beyond the high-level cooperative agreements that have characterized maritime security discussions in such regional organizations as APEC and ASEAN and instead provide concrete actions for participating states to take. In his 2005 evaluation of Southeast Asian maritime security cooperation, LT John F. Bradford of the U.S. Navy drew a distinction between security cooperation and “operationalized security cooperation.” The latter emphasizes the actionable steps midlevel officials can take more heavily (Bradford, 2005, p. 64). The Malacca Strait Patrol Network and ReCAAP, which we mentioned earlier, are both good examples of initial progress in this direction. However, these types of efforts need to be expanded to cover a greater portion of the sea-lanes and include more states.

Similarly, within the United States, interagency cooperation should go beyond memorandums of understanding and strategy documents and to include actionable items for each participating agency or service.

### **Economically Affordable**

To be feasible, the new approach also needs to be affordable—both for the United States and for the partner nations. Facing an increasingly constrained defense budget and a Congress that is less willing to fund overseas activities, the United States will seek the greatest return on its investment. Initiatives that draw on existing assets and programs will cost less to implement. Additionally, any new solution should also do a better job of spreading the cost burden among the various players in the region, which will be particularly important for obtaining the support and participation of the Malaccan littoral states. These states view strait security as a huge financial burden and desire greater financial aid for security and maintenance of the waterway (Khalid, 2009, p. 427).

### **Leading from Behind**

Finally, to truly gain the full benefits of a multinational approach, the United States needs to be willing to cede hands-on leadership and to use its regional clout to support the constructive attempts of the local states to generate action. The United States has done this with varying degrees of success in such efforts as CTF-150, CTF-151, and PSI. “Leading from behind” would alleviate some of the administrative and political burden on the United States, may help to gain the participation of countries that are reluctant to be perceived as close U.S. allies, and would encourage participants to take greater individual and collective ownership for regional security. Working with and through partners is a more robust and sustainable solution to securing energy sea-lanes than simply seizing leadership.

### **Potential Next Steps**

The new approach to sea-lane security described in this report will require the involvement of a wider array of actors than in the previous U.S. Navy-centric approach to sea-lane security. We have identified some potential next steps for gaining greater involvement from two sets of key actors: the U.S. Air Force and countries in the region.

#### **Air Force**

As a service with global reach, the U.S. Air Force is well positioned to contribute to the sea-lane protection mission. Basic Air Force doctrine includes sea-lane security as one of the service’s key operational functions: “support of maritime operations, conduct, through air and space operations, surface sea surveillance and antisurface-ship warfare; antisubmarine warfare and anti-air warfare operations to protect sea lines of communications” (Air Force Doctrine Document 1, 2003, p. 38). The U.S. Air Force can make a valuable contribution to sea-lane security

by working more closely with both the U.S. Navy and with partner country air forces in the region. Many of these steps could commence in the near term and would require little additional monetary investment from the U.S. Air Force.

### **Air Force–Navy Cooperation**

The ongoing development of an AirSea Battle concept provides an excellent opportunity to explore areas in which the U.S. Air Force and U.S. Navy can complement one another. As the concept matures, it should include serious investigation of the attractiveness of, and opportunities for, interdependence as a means of reducing costs and duplicative efforts at a reasonable level of risk. The June 2010 memorandum of agreement between the U.S. Air Force and U.S. Navy calling for greater collaboration on the Global Hawk and BAMS programs (including joint training, maintenance, and basing) is illustrative of just such cooperation (“Navy, Air Force Partner . . .,” 2010).<sup>1</sup> The two services are also currently developing sufficient interoperability to demonstrate the capability to pass and receive Global Hawk. This would especially be helpful because BAMS will also have an AIS capability to track shipping. As part of the ongoing collaboration, BAMS has profited through formal exchanges to improve its management approach from difficult lessons that the U.S. Air Force learned from the Global Hawk (Fulghum, 2010). Further, the two services are exploring the integration of the Global Hawk’s Airborne Signals Intelligence Payload into BAMS, providing more robust communications relays and a signals intelligence capability (“US Navy BAMS . . .,” 2011).

Joint sea-lane security could become an operational goal for the next phase of this currently programmatic collaboration, with the support of a tailored set of sea-lane security experiments and exercises. Such experimentation is needed to validate the most effective role for each service and to develop procedures and interoperability standards for joint sea-lane security operations.

Interservice cooperation could also be pursued through greater engagement with U.S. Pacific Command (PACOM), which is traditionally led by a U.S. Navy four-star flag officer. PACOM has a strong reputation and the requisite capabilities as a partner in the Indian Ocean and the Asia Pacific. Further engagement with PACOM and the U.S. Navy’s component command—Pacific Fleet—would provide insights into ongoing regional sea-lane security cooperation and would build on existing U.S. Navy relationships as the Air Force deepens its own engagement with regional partners. The biannual RIMPAC exercises might offer an opportunity for exploring cooperation between the U.S. Air Force and the U.S. Navy on the Asian sea-lane security challenge. The Air Force has already participated in a number of recent RIMPAC events (Kaya, 2010). Such a forum would not only bring the services together to operationalize the AirSea Battle concept but could also engage the majority of the region’s air forces and navies in joint activities involving their sea-lane security capabilities. Additionally, the exercise initiative, if viable at the start, could be expanded to incorporate the intelligence services or interagency entities (e.g., the National Maritime Domain Awareness Coordination Office), commercial services mentioned previously, and/or coordination with multinational organizations.

<sup>1</sup> BAMS is specifically designed capability to specifically provide maritime surveillance, collection of enemy order of battle information, battle damage assessment, port surveillance, communication relay, and support of the following missions—maritime interdiction, surface warfare, battlespace management, and targeting for maritime and littoral strike missions (Northrop Grumman, 2011).

### Partner Engagement

A key aspect of a multinational approach to sea-lane security in which the United States leads from behind will involve building partner capacity. The U.S. Air Force contributes to this effort by supporting and training partner air forces. Enhancing this cooperation is consistent with DoD, 2010, p. x, which calls for greater Air Force contributions to security force assistance operations but also expands the counterterrorism and counterinsurgency focus of many of the U.S. Air Force's partnership building efforts to include maritime security. Building on the current Air Force partnership strategy in Asia should involve the DOS Asia Bureau (in concert with the Office of the Undersecretary of Defense for Policy) for insights and opportunities on regional engagement and feedback to help shape the allocation of theater air resources.

The Air Force's bilateral discussions could serve as another component of partner engagement. These discussions are valuable because they optimize service-to-service interactions (i.e., U.S. Air Force to Indian Air Force) and can avoid many of the challenges associated with the broader state-to-state interactions that occur at higher levels. One way to address Asian energy security issues through bilateral discussions would be for Headquarters Air Force's Building Partnerships seminars to include a scenario on Indian Ocean sea-lanes. Maritime energy security could also be included in the U.S. Air Force hosted Operator Engagement Talks. Several key countries in the region participate in these bilateral talks with the U.S. Air Force every 18 months, including Australia, Japan, Pakistan, Singapore, South Korea, and India. Spin-offs of these talks could directly address the issues of U.S. Air Force-sponsored bilateral and multi-lateral confidence-building measures and sea-lane security in cooperation with the navies of participating nations. Further support might come from specific engagement of partnerships between state Air National Guard state contingents and those of other nations (e.g., Hawaii and Indonesia, Washington and Thailand) and from broader discussions under the Global Community of Airmen rubric. Discussions of technical opportunities in the Air and Space Interoperability Council, Air Senior National Representative forums, or Coalition Warrior Interoperability demonstrations might address such matters as a precise solution for a global common maritime awareness (perhaps through upgrades to the Long Range Identification and Tracking system).

### Assets to Contribute

Given its array of ISR capabilities, the U.S. Air Force is particularly well positioned to support sea-lane observation by augmenting current naval capabilities. At the unclassified level, the U.S. Air Force's space-based assets could be a source of persistent surveillance over large swathes of ocean that are difficult for the U.S. Navy and regional states to monitor on their own. Long-duration unmanned aerial vehicles and future lighter-than-air platforms could provide broad-area surveillance over high-interest areas, supplementing existing capabilities in the region. Air Force space capabilities could also be augmented by currently available, and evolving, commercial capabilities for maritime persistent surveillance. Three space-based applications appear to show particular promise. ORBCOMM demonstrated the ability to provide global AIS coverage through two-way space-based machine-to-machine connectivity (ORBCOMM, 2011).<sup>2</sup> GeoEye can combine 1-m imagery with two-way reporting on a vessel's position through its IMARSAT SAT-202 Vessel Tracking Unit to monitor specific vessels

<sup>2</sup> ORBCOMM indefinitely discontinued its space-based AIS service following the failure of its last remaining AIS capable satellite in late 2010 (de Selding, 2011).

worldwide (GeoEye, 2011). Likewise, RADARSAT-2 can provide 3-m resolution synthetic aperture radar images with the potential for all-weather ship classification (Canadian Space Agency, 2011). Combined, these applications offer the possibility of bundling services for shared and persistent global maritime awareness integrating them into existing or future government developed capabilities.

The Air Force also has significant intelligence expertise that could be lent to the sea-lane security effort. As one example, the U.S. Air Force could begin plugging into regional information-sharing efforts by sending a liaison officer to Singapore's recently established Information Fusion Centre (which also hosts military personnel from Australia and India).

## Multinational

Pursuing a more cooperative approach to Asian sea-lane security will require collaboration and coordination of activities among several key players on the U.S. side. At a minimum, the players include the Office of the Secretary of Defense (Policy), PACOM, and the DOS bureaus of South and Central Asian Affairs and East Asian and Pacific Affairs. Efforts to introduce a multinational solution might initially best be exploratory and incremental because of suspicions within the region of new organizations and initiatives led from outside the region. Possible near-term steps for introducing the idea of a collective security approach to sea-lanes include support for and nuanced participation in selected regional security forums. DoD's Asia-Pacific Center for Security Studies could be used as a low-pressure multilateral forum for concept exploration with U.S. partners and key regional actors. In the past, the center has been successful in bringing together regional actors who may otherwise be reluctant to cooperate (such as China and Taiwan).

## Forks in the Road

The success of any new approach to energy sea-lane security will depend on the choices made by critical players and future events. The Air Force will need to commit to further partner engagement in the region and to refine its own sea-lane security concept. The Navy's willingness to jointly explore service interdependence in sea-lane security within the AirSea Battle initiative will also be important. Additionally, OSD Policy, the Joint Staff, and PACOM will need to support greater Air Force involvement in sea-lane security and in building partnership capacity in the Asia-Pacific region. For a true whole-of-government approach to be implemented, DOS will also need to actively support any new effort and will play a particularly important role in supporting resources for foreign partner assistance. Finally, no new multinational approach can be successful without the active participation of key regional partners. Without their support, a new effort could become a lightning rod for controversy that would further divide countries in the region (as was the case with PSI), yet another initiative lacking real teeth (as with some of the existing agreements), or an abject failure that reflected negatively on U.S. intentions in the region (as in the instance of RMSI).

## Conclusions

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Ensuring continued access to the energy sea-lanes running from the Middle East to Asia is of critical importance to the United States, not only because of the sea-lanes' significance to international energy markets but also because of their role in the broader security of the Asia-Pacific region.

Although the likelihood of a major disruption to the flow of energy via the sea-lanes is low, it appears that the effectiveness of the existing approach to Asian sea-lane security is narrowing. While current mechanisms have been somewhat successful in deterring piracy and armed robbery, existing capabilities (in particular the limited mechanisms for interstate coordination) would likely not fare well in coping with more robust threats, such as state-to-state or great power (Tier III) conflicts. Of particular concern is the fact that sea-lane security has failed to keep pace with the growing importance of these trade routes to Asian states: the primary lifeline for the energy resources so critical to their economic growth. This failure contributes to growing perceptions of sea-lane insecurity in the region. This insecurity manifests itself in a number of ways, but perhaps the one of greatest concern is the possibility of military buildup in the region. Such a buildup could evolve into competition and with it the potential for miscalculation.

Given the stresses the U.S. Navy is facing and the emergence of new centers of influence in the region, it is an appropriate time for the United States to reevaluate its traditional approach to securing the commons. This report examines two sets of solutions to improving sea-lane security:

- increased jointness on the part of the United States
- increased multinational coherence on the part of regional powers.

Both solutions provide multiple benefits, exceeding the functional value they provide to sea-lane security.

A joint solution is entirely feasible. Implementation is a function of strong leadership and is completely under the control of the U.S. government. A joint U.S. government approach is valuable not only because it enhances overall sea-lane security capabilities but also because it alleviates the burden on an already stretched U.S. Navy. In particular, the U.S. Air Force possesses a number of capabilities—ISR systems, intelligence analysis skills, experience training foreign security forces, and notable regional relationships—that complement existing sea-lane security efforts and could enhance the U.S. contribution to security in the region. Sea-lane security could be used as a test bed for some of the concepts being development under the ongoing AirSea Battle initiative. Leveraged in this way, the benefits from operating more

jointly would extend well beyond sea-lane security and the Asia-Pacific region and would touch U.S. Navy and Air Force activities across the globe. Given the U.S. Air Force's capacity, desire for greater coordination with the U.S. Navy, and the benefits of approaching line-of-communication security jointly, this issue appears to warrant the further consideration of U.S. Air Force leadership.

A multinational solution is more challenging because it requires effectively engaging and supporting regional allies. Implementation must make every effort to include China in order to avoid the appearance of balancing against this key regional player and thereby feeding Chinese insecurities. However, it must also be recognized that the benefits of adopting such an approach may appear to outweigh the effort required to pursue it. A U.S.-supported multinational approach has the potential to begin to defuse the building tensions in the region. Strengthening confidence-building mechanisms for multinational engagement can lower the likelihood of miscalculation in the future and build the foundation for greater regional cooperation.

## **Additional Multinational Maritime Security Mechanisms in Asia**

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The Asia-Pacific maritime domain has numerous and overlapping forums for international cooperation on the issues of trade and maritime activities. Recently, there have been both regional security and some initial forays into collective security activities. This appendix provides thumbnail descriptions of these forums and top-level commentary on their applicability to the promoting international energy security along the Asian sea-lanes.

### **Asia-Pacific Economic Cooperation**

Although primarily devoted to promoting trade and economic cooperation, APEC has hosted a series of workshops and established a number of task forces to address threats to shipping in the region. The organization established a counterterrorism task force in 2003: Secure Trade in the APEC Region (STAR) is aimed at countering terrorist threats to the supply chain while maintaining efficiency in the trade system. A separate working group examined the risk associated with energy disruption and encouraged its members to develop plans for coping with a supply disruption (APEC Energy Working Group, 2009). APEC serves another important, though unofficial, role as a vehicle for wealthier states, such as Australia, Canada, and the United States, to provide maritime security assistance to less-developed states in the region (Cole, 2008, p. 164). APEC has been criticized, however, for failing to effectively translate its discussions into practical security measures (Cole, 2008, p. 167).

### **Association of Southeast Asian Nations**

Despite its status as Southeast Asia's leading regional organization, ASEAN plays only a limited role in sea-lane security. ASEAN's security efforts are limited in part by the organization's policy of noninterference in domestic issues (Liss, 2007, p. 10).

In addition to its official members, ASEAN has two groupings that allow cooperation with a broader set of countries. ASEAN Plus Three, which includes China, Japan, and the Republic of Korea, focuses primarily on economic issues but occasionally touches on security issues through its Track II body, the Network of East-Asian Think Tanks. ASEAN Plus Three is China's "preferred vehicle" for regional cooperation (Bisley, 2009, p. 55).

The ASEAN Regional Forum (ARF), in which the United States participates, has been addressing maritime security issues since 2003, when it released its statement on threats to maritime security (ARF, 2003). This was followed by a pledge from ASEAN leaders in October

of 2003 to increase cooperation to combat piracy, terrorism, and other transnational crimes. In July 2006, ARF's leadership "endorsed a proposal for an ARF Maritime Security Shore Exercise aimed at enhancing interoperability among the region's maritime security agencies" (International Institute for Strategic Studies, 2006, p. 50). This exercise was held in Singapore in January 2007 and included both tabletop and tactical trainer (i.e., simulated) exercises (Singapore Ministry of Defense, 2007).

### **South Asia and Africa Regional Port Security Cooperative**

SAARPSCO, formed in May 2008, addresses threats to shipping in the India Ocean and South Asia. The group has invited 28 countries to participate, with the founding members including Bangladesh, Comoros, India, Madagascar, the Maldives, Mauritius, Oman, Pakistan, and Sri Lanka. Although not a member of the organization, the United States supports its efforts, principally through the U.S. Coast Guard. The group has been meeting annually to discuss ways to improve regional port and maritime security. The group's objective is to "Harmonize port and maritime security networking" throughout the Indian Ocean. The negative effect of piracy on tourism and trade in the region has been one of the motivating factors behind its formation (Seychelles Port Authority, 2010).

### **Western Pacific Naval Symposium**

Established in 1988, WPNS is one of the oldest organizations in the region to bring together maritime security forces. Its membership currently consists of 24 Pacific Rim countries. WPNS is intended to encourage cooperation among navies in the western Pacific by promoting dialogue through forums. In 2005, the group began holding live and tabletop exercises on topics ranging from humanitarian assistance to terrorism. WPNS is one of the few existing forums for cooperation between the U.S. and Chinese navies.

### **Indian Ocean Naval Symposium**

The Indian Ocean Naval Symposium was established by India in 2008 to serve as a forum for the naval chiefs (and/or heads of other principal maritime agencies) of the littoral states in the Indian Ocean region. Modeled after WPNS, the group's objectives include promoting the sharing of issues and concerns, strengthening maritime security capabilities, establishing consultative and collaborate mechanisms to address and mitigate maritime security concerns in the region, and improving interoperability for humanitarian assistance and disaster relief (Indian Navy, undated). The group has met three times thus far, in India, Sri Lanka, and the United Arab Emirates. The organization currently has 33 members, but, notably, India has denied China's request to join the group (Sakhuja, 2009, p. 14).

## Horn of Africa Multinational Forces

Although not focused on the Asian maritime sea-lanes, the multinational forces operating off the Horn of Africa are one of the most robust modern examples of ad hoc, nontreaty international cooperation to combat threats to shipping. Both CTF-150 and CTF-151 have afforded militaries from the Indian Ocean and Asia-Pacific experience in combined international maritime security operations and in combating transnational threats to shipping.

CTF-150 was initially established to deny terrorists the use of sea but also combats piracy and illegal trafficking of people and drugs. Its area of operations includes the Gulf of Aden, Gulf of Oman, Arabian Sea, Red Sea, and western portions of the Indian Ocean. While CTF-150 ultimately reports to the U.S. Navy's 5th Fleet, it has been led by Australian, British, Canadian, Danish, Dutch, French, German, and Pakistani commanders (Dutton, 2009, p. 19).

CTF-151, also referred to as the Contact Group on Piracy Off the Coast of Somalia (CGPCS), was formed in January 2009 under the auspices of the UN to combat piracy off the coast of Somalia. Its area of operations is more narrowly focused on the Gulf of Aden and eastern coast of Somalia. Like CTF-150, this task force has been led by a rotating set of commanders from a wide range of countries, including the United States, Singapore, and Turkey. This arrangement has been touted as a success for its ability to draw on networks rather than formal military alliances and is an example of the United States "leading from behind" (Christoffersen, 2009, p. 138).

The efforts of CTF-151, other multinational groups, and independently deployed nations conducting counterpiracy missions off the coast of Somalia are coordinated through SHADE meetings. Participants include the United States, NATO, the European Union, China, Russia, and a number of other countries with patrols coordinated by the Combined Maritime Forces. As noted earlier, participation in SHADE represents a major step in Chinese involvement in a multinational maritime mission. China joined the group in January 2010 and, under SHADE, will take part in the rotating Combined Maritime Forces chairmanship, and will "be required to patrol a 60-nmi sector of the transit corridor a month at a time" (Arthur, 2010).

## Proliferation Security Initiative

PSI is another multilateral maritime security activity. Initiated by the Bush administration in 2003 and strongly supported by the Obama administration, PSI is a global effort to interdict weapons of mass destruction while they are in transit. Participating countries have committed to improving the exchange of proliferation information, refraining from transporting or assisting in the transport of such weapons, and boarding and searching any vessel flying their flags that they suspect of carrying such weapons (DOS, 2003). Participants have improved their capabilities and improved interoperability with each other through participation in PSI exercises. In its first five years, the initiative held "over 30 operational air, maritime, and ground interdiction exercises involving over 70 nations" (DOS, 2008).

Because of its singular focus on weapons of mass destruction, PSI is not intended or equipped to address a broader range of maritime security threats. However, its format (a voluntary initiative with no bureaucratic overhead, rather than a legally binding agreement or highly structured organization) is instructive for understanding possible future regional secu-

rity arrangements. While PSI counts 97 member countries (DOS, 2010), five key countries in the Asia-Pacific region (Indonesia, Malaysia, India, Pakistan, and China) have not joined because of concerns about its legality, interdiction practices, and political implications of membership and broader concerns over potential impingement of their sovereignty (Wolf, Chow, and Jones, 2009, p. 45).

### **International Maritime Bureau and International Maritime Organization**

Two other organizations frequently mentioned in the context of sea-lane security are IMB and IMO. These two organizations are focused on collecting data related to maritime security incidents and setting maritime safety standards. While IMB and IMO can serve as partners in sea-lane security, they do not have the necessary capabilities to protect the sea-lanes themselves.

IMB is run by the International Chamber of Commerce and serves the shipping industry. Established in 1992, its Piracy Reporting Center in Kuala Lumpur, Malaysia, has become one of the leading sources of data on the level of armed robbery and piracy attacks at sea. The center maintains a 24-hour sea-lane watch via the incident reports it receives, reports attacks to local law enforcement, and warns the shipping industry of piracy hotspots (International Chamber of Commerce, undated).

IMO was established by the UN and is based in London. Its focus is on the development of an international regulatory framework for shipping. IMO tracks maritime piracy with monthly, quarterly, and annual reports using data reported by member governments and international organizations. IMO has looked favorably on cooperative regional efforts to combat piracy and, in particular, cites ReCAAP as a good example of successful cooperation that it would like to replicate elsewhere (International Maritime Organization, undated a).

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